APPENDIX

Description of Self-Repairing System:

When power is applied to the system, the micro controller powers up, initializes the LCD prompt screen and the "Ready for Normal Operation" prompt is displayed. At this point the micro controller waits until the single pole single throw switch (S1) is pressed. When S1 is pressed the micro controller prompts the user "Repair Selected".

The position of the slider switch S2 is now stored in memory. Then based on the switch's initial location the user is instructed to slide the switch opposite its initial position to confirm the repair request: "Please slide switch from A->B" or "Please slide switch from B->A".

At this point or any other time (except when a "Repair in Progress"), the user can cancel the repair request by pressing the pushbutton switch, at which point the dialog "Repair Cancelled" is displayed. The system will then return to "Ready for Normal Operation" mode.

If the user wishes to confirm the repair, and moves the slide switch as instructed, the computer will check the power status of the computer. The micro controller reads the logic level of opto-isolator U4. Logic high represents the computer being powered. If the computer is on, the user will be prompted to "Please Shutdown the Computer". The computer then again reads in the logic level of U4.

If the computer has been shut down U4 will output a logic low. After the controller confirms that the computer is off the user is then prompted to restart the computer

At this point solid-state relay U3 and opto-isolator U2 are enabled. This ensures that when the computer is restarted the Master hard drive receives power as IDE ID0 and the internal user drive boots with its ID switched to Address 1 (ID1).

When the computer is restarted, U4 outputs logic high to the micro controller. This signal denotes that the computer is powered and prompts the "Repair in Progress" message, which is displayed on the LCD screen. Once the repair process is enabled the micro controller displays this message and executes no other commands until the computer is shutdown (U4 outputs a logic low signal).

When the computer is shutdown by the repair software, the micro controller informs the user that the process is complete with the "Repair Complete" dialog.

The micro controller then enters the "Ready for Normal Operation" mode and waits for a new repair process.

Hardware description:

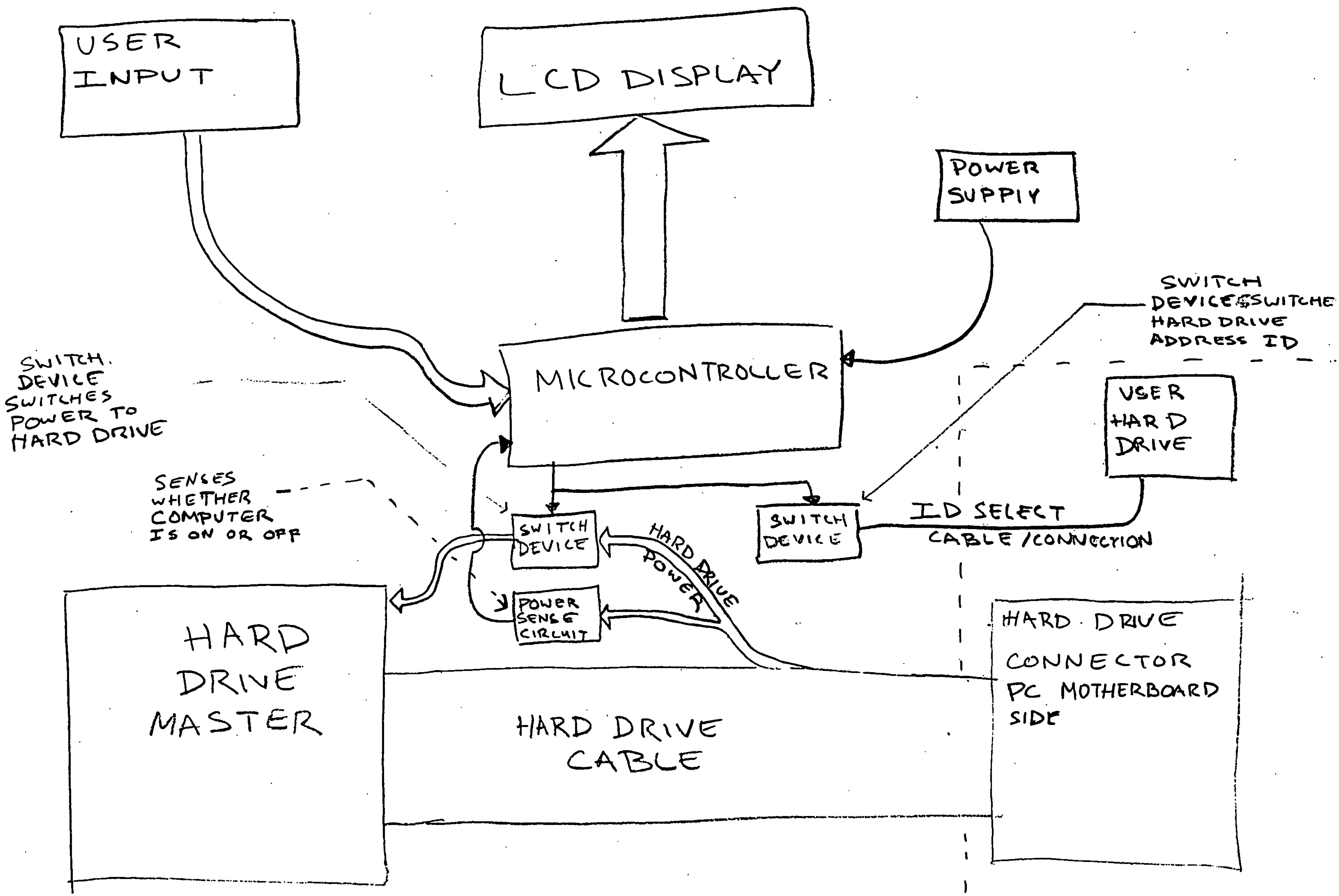
The microcontroller at the heart of the system is a Basic Stamp II micro controller which controls the repair progress, LCD user interface and also supplies a 5 volt regulated power supply for all the devices in the circuit.

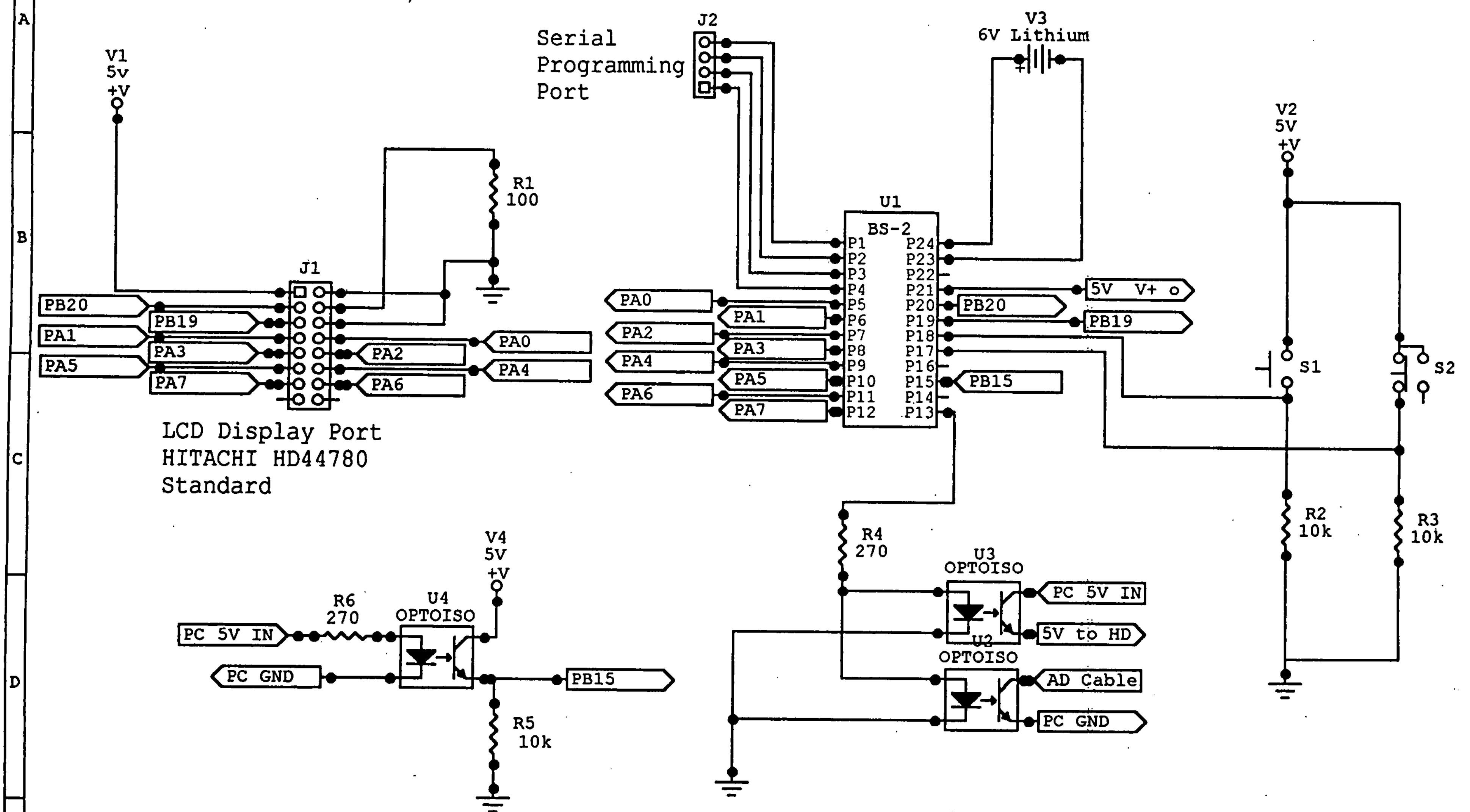
The optional LCD screen is a 2X16 character LCD based on the industry standard Hitachi HD44780 controller chip.

The solid-state relay, which switches power to the master hard drive, is an International Rectifier PVN012. Any switching device could be used to switch hard drive power.

The other opto-isolators are NEC 2501.

The batteries are quantity 2 – 3 volt 1200ma Lithium batteries connected in series for a 6 volt output. This powers a voltage regulator on the Micro controller, which supplies 5 volts to the rest of the circuit. Any power supply from 5.1 volts to 15 volts can be used.

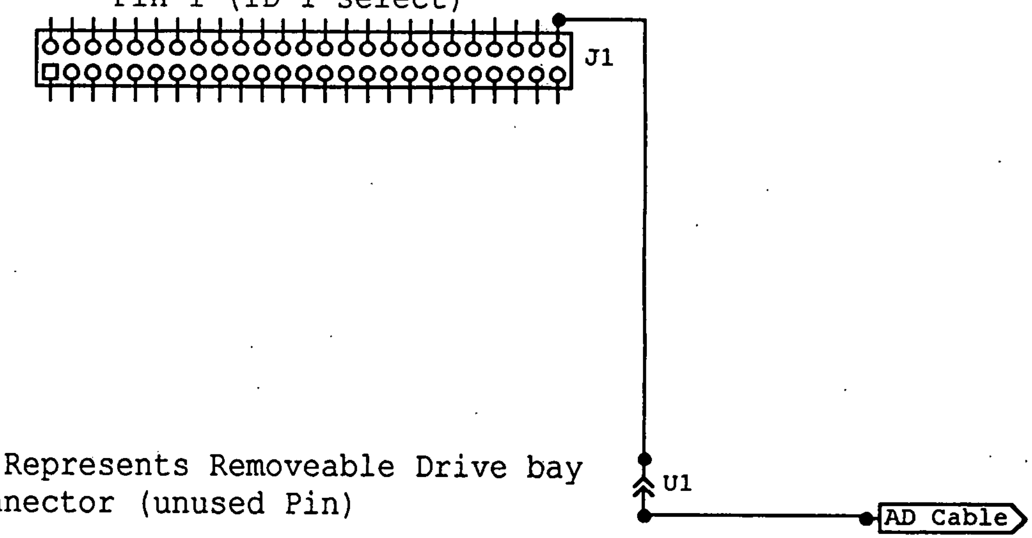

USER INPUT
LCD DISPLAY
POWER SUPPIY
MICROCONTROLLER
SWITCH DEVICE$SWITCHE HARD DRIVE ADDRESS ID
USER HARD DRIVE
SWITCH DEVICE SWITCHES POWER TO HARD DRIVE
SENSES WHETHER COMPUTER IS ON OR OFF
SWITCH DEVICE
SWITCH DEVICE
ID SELECT CABLE /CONNECTION
HARD DRIVE POWER
POWER SENSE CIRCUIT
HARD DRIVE MASTER
HARD DRIVE CABLE
HARD DRIVE CONNECTOR PC MOTHERBOARD SIDE



Title: SRC Microntroller Schematic		
Rev	ID Sheet 1of 1	
Date: 4/21/01		Page: 1 of 1

Address Select Cable

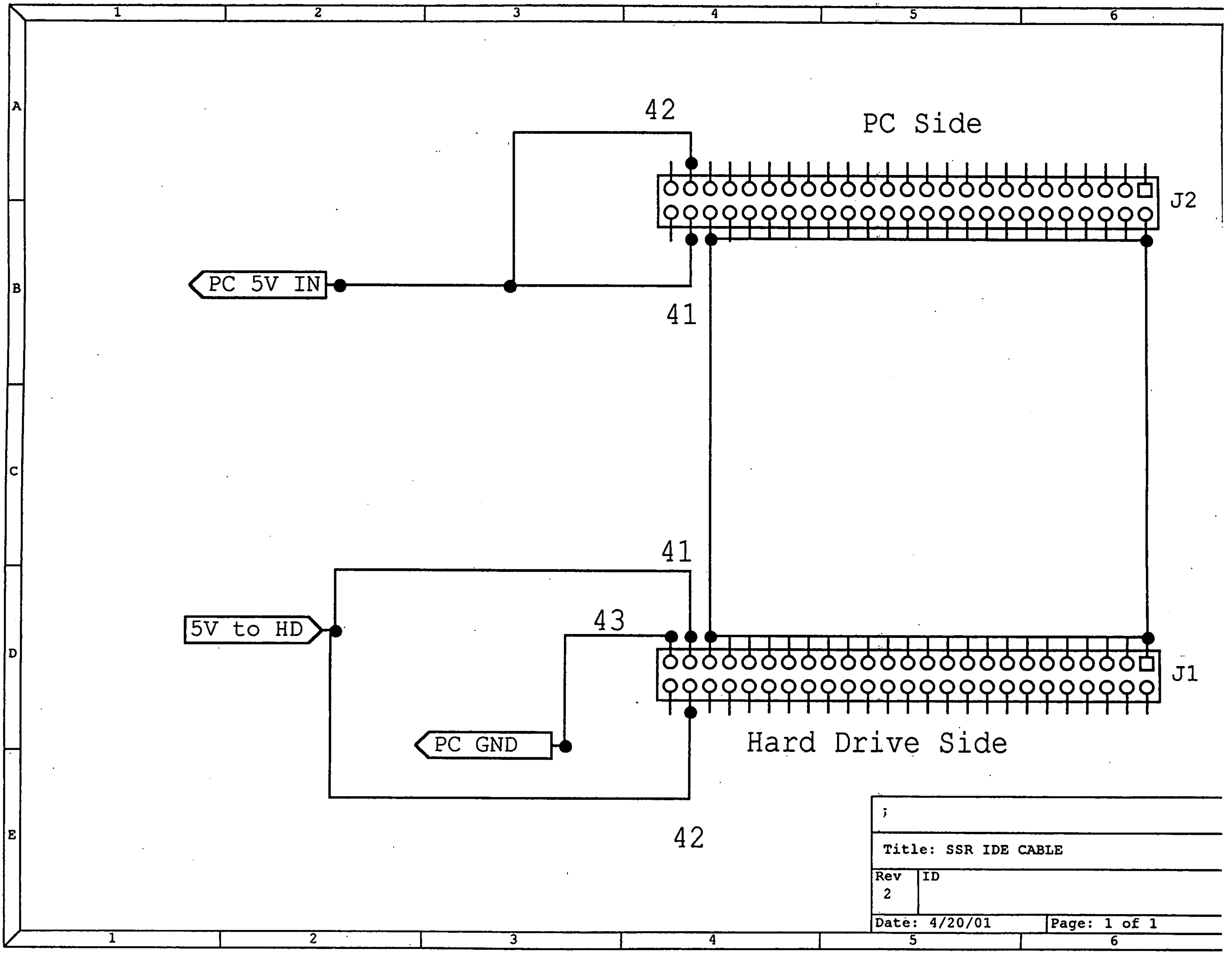
Internal User Hard Driv IDE
Connector
Pin 1 (ID 1 select)



U1 Represents Removeable Drive bay
connector (unused Pin)

Title:SSR ADDRESS SELECT CABLE

Rev	ID
Date: 4/21/01	Page: 1 of 1

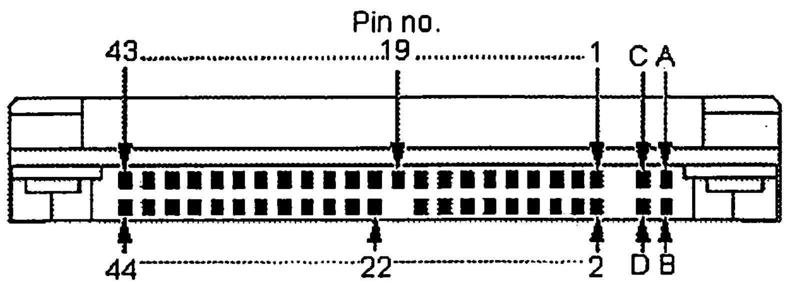


PC Side
J2
42
41
PC 5V IN
J1
41
43
42
5V to HD
PC GND
Hard Drive Side
Title: SSR IDE CABLE
Rev
2
ID
Date: 4/20/01
Page: 1 of 1

Cable Pinout

Hard Drive Pinout (from IBM website)

Travelstar 20GN, 30GT, 32GH
Models: DJSA-232, 230, 220, 210, 205



Notes: A/T = IDE. Pin position 20 is left blank for secure connector insertion. Pin position A,B,C, and D are used for drive ad

Signal definition

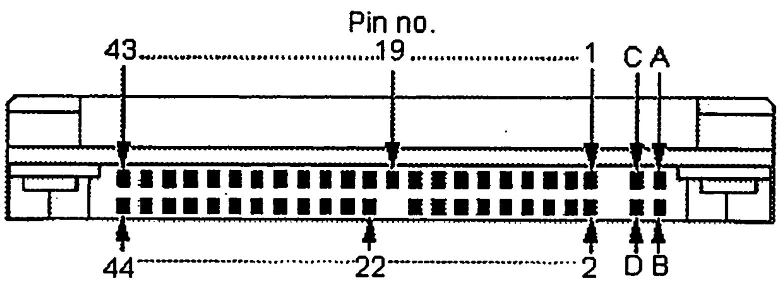
As shown in the schematic diagrams, the IDE Hard Drive cable is a standard 'Hard Drive extension cable. The Hard Drive power connections (cable lines 41 and 42 have been cut and rout the circuit's solid state relay which switches the hard drive power under the microcontroller's direction. I connection has (line 43) has also been routed to the circuit board to drive the opto-isolators. The comput supply and the microcontroller power supply are separate, and interfaced through opto-isolators.

The Address Selector Cable carries the address signal connection from the internal User Hard drive to the removeable drive bay removeable connector. On that connector an unused pin is connected on the computer mother board side. The male interface connector from the removeable drive bay then interfaces to that signal when the bay is inserted into the computer. On the drive bay side the signal is then taken to the micrcontroller where the connection is switched to ground in order to change the drive address (ID selector signal pin is a floating pin that must be sinked to ground to switch).

Cable Pinout

Hard Drive Pinout (from IBM website)

Travelstar 20GN, 30GT, 32GH
Models: DJSA-232, 230, 220, 210, 205



Notes: A/T = IDE. Pin position 20 is left blank for secure connector insertion. Pin position A,B,C, and D are used for drive address setting.
Signal definition

As shown in the schematic diagrams, the IDE Hard Drive cable is a standard 'Hard Drive extension cable. The Hard Drive power connections (cable lines 41 and 42 have been cut and rout through the circuit's solid state relay which switches the hard drive power under the microcontroller's direction. PC ground connection (line 43) has also been routed to the circuit board to drive the opto-isolators. The computer power supply and the microcontroller power supply are separate, and interfaced through opto-isolators. Therefore the microcontroller ground and PC ground must be kept separate

The Address Selector Cable carries the address signal connection from the internal User Hard dri to the removeable drive bay, removeable connector. On that connector an unused pin is connected on the computer mother board side. The male interface connector from the removeable drive bay then interfaces that signal when the bay is inserted into the computer. On the drive bay side the signal is then taken to the miccrcontroller where the connection is switched to ground in order to change the drive address (ID select signal pin is a floating pin that must be sinked to ground in order switch).

In other systems with different types of hard drives there are other methods of accomplishing the switchir process. The necessary signals to switch are the Hard Drive power and Drive ID. These connections may different on other computer hard drives. For example ID switching could be carried out using Cable Selec The Computer power sensing circuit could also sense power somewhere else in the computer.

```
'.......................................................................................
'       Variable Declarations


Sw1                 var          IN13
Sw2                 var          IN12
Sw2_Loc             var          byte
Sw2_Loc_Cnfrm  var          byte
Mode                var          byte
Char                var          b3
btnWk          var          byte
HD                  var          Out8
Comp_On        var          in10
z                   var          byte
RS                  con          15
E                   con          14
LINE1          con          128
LINE2          con          128+$40
'.......................................................................................
'       Variable initializations

DIRs = %1100000011111111
btnWk=0
'.......................................................................................

Init_LCD:                                                       'LCD INITIALIZATION
low 8                                                           'Hard Drive OFF


low RS
low E
x var byte
x=0

i_LCD:  OUTL = %00000010                            'Set to 8-bit operation.
                pulsout E, 1                                    'Send data three times
            pause 20                                        'to initialize LCD.
                pulsout E, 1
            pause 20
                pulsout E, 1
            pause 20

                outl = $0038                        'Set up LCD in accordance with
            pulsout E,1                     'Hitachi instruction manual.

            outl = %00001010                'Turn on cursor and enable
            pulsout E,1                     'left-to-right printing.

                outl = %00001100
                 pulsout E,1

                outl = %00000001
                 pulsout E,1

                outl = %00000110
                 pulsout E,1

        High RS                                         'Prepare to send characters.
                outl = %00000101
                 pulsout E,1
                outl = %00000011
                 pulsout E,1

        Gosub CLR
'.......................................................................
Start:
                                                                'idle mode
        HD=0                                                        'Hard Drive off - Normal operation
        gosub Ready_Mesg

Idle:
        BUTTON 13,1,255,0,btnWk,1,Repair                    ' check pushbutton switch

        goto Idle


Repair:
                gosub GETSW_LOC

                if SW2_LOC= "A" then UPDLOC
                        SW2_LOC_CNFRM= "A"

                goto Repair1

                UPDLOC:
                SW2_LOC_CNFRM= "B"
```

```
Repairl:

        gosub CLR

                low RS
                x=LINE1+4                                   'center text on top line
                gosub Send_data
                high RS


        for b2=0 to 14
                Lookup b2,["Repair Selected"],b3
                x=b3
                gosub Send_data
                next
        pause 500

                low RS                                          'format text
                x=Line2+1
                gosub send_data
                high RS


        for b2=0 to 17
                Lookup b2,["Slide Switch From "],b3
                x=b3
                gosub Send_data
        next

        x=Sw2_Loc
        gosub send_data

        x="-"
        gosub send_data

        x=">"
        gosub send_data

        x=SW2_Loc_Cnfrm
        gosub send_data


Cnfrm_loop:
                gosub Getsw_Loc                                          ' Get Current Switch Location
                BUTTON 13,1,255,0,btnWk,1,Cancel                   ' check pushbutton switch

                if Sw2_Loc = Sw2_Loc_Cnfrm Then Enable_Repair        'check for confirmation or cancellation
goto Cnfrm_loop


Enable_Repair

        if Comp_On = 1 then Prompt_Shutdown

        goto Prompt_Restart

Prompt_Shutdown:

        gosub Shutdown_Mesg

Shutdown_Loop:

        If Comp_On = 0 then Prompt_Restart
        BUTTON 13,1,255,0,btnWk,1,Cancel

goto Shutdown_Loop



Prompt_Restart

        HD = 1                                  'Enable Hard Drive - Normal Addressing
        gosub Restart_Mesg

Restart_Loop:

        If Comp_On=1 Then In_Progress

        BUTTON 13,1,255,0,btnWk,1,Cancel
goto Restart_Loop
```

```
        Gosub Progress_Mesg
        pause 200
        If Comp_On=0 then Repair_End
        pause 300
        gosub ClR
        Pause 200
        If Comp_On=0 then Repair_End
        Pause 300
        Gosub ClR
Goto In_Progress

Cancel:
        gosub CLR
        pause 400
        gosub Cancel_Mesg
        pause 400
        gosub CLR
        pause 400
        gosub Cancel_Mesg
        pause 400
        gosub CLR
        pause 400
        gosub Cancel_Mesg
        pause 400

goto Start
Repair_End:

        HD = 0                          'Disable Hard Drive - Return to Normal Mode

        Gosub CLR
        pause 400
        Gosub Complete_Mesg
        pause 400
        Gosub CLR
        Gosub Complete_Mesg
        pause 400
        Gosub CLR
        Gosub Complete_Mesg
        pause 400
        Gosub CLR

goto Start
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
'                       Messaging Subroutines

Ready_Mesg:
gosub CLR

        low RS
        x=LINE1+7                                               'center text on top line
        gosub Send_data
        high RS

        for b2=0 to 8
                Lookup b2,["Ready For" ],b3
                x=b3
                gosub Send_data
        next

        low RS
        x=Line2+4
        gosub send_data
        high RS

        for b2=0 to 15
                Lookup b2,["Normal Operation"],b3
                x=b3
                gosub Send_data
        next

return
''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''''
Repair_Mesg

        gosub CLR
                low RS
                x=LINE1+4                               'center text on top line
                gosub Send_data
                high RS


        for b2=0 to 14
                Lookup b2,["Repair Selected"],b3
                x=b3
                gosub Send_data
        next
```

```
return
.............................................................................
Cancel_Mesg:

            gosub CLR


            Low Rs
            x=LINE1+4                                  'center text on top line
            gosub Send_data
            high RS

      for b2=0 to 15
            Lookup b2,["R","e","p","a","i","r"," ","C","a","n","c","e","l","l","e","d"],b3
            x=b3
            gosub Send_data
            next

return
.............................................................................
Shutdown_Mesg:

      Gosub CLR

            for b2=0 to 23
            Lookup b2,["P","l","e","a","s","e"," ","S","h","u","t","d","o","w","n","
","C","o","m","p","u","t","e","r"],b3
            x= b3
            gosub send_data
            next
return
.............................................................................
Restart_Mesg:

      Gosub CLR

            for b2=0 to 22
            Lookup b2,["P","l","e","a","s","e"," ","R","e","s","t","a","r","t","
","C","o","m","p","u","t","e","r"],b3
            x= b3
            gosub send_data
            next
return
.............................................................................
Progress_Mesg:

      gosub CLR

            low RS
            x=LINE1+3                                        'center text on top line
            gosub Send_data
            high RS

      for b2=0 to 17
            Lookup b2,["R","e","p","a","i","r"," ","I","n"," ","P","r","o","g","r","e","s","s"],b3
            x=b3
            gosub send_data
      next

return

.............................................................................
Complete_Mesg:

      Gosub CLR
            low RS
            x=LINE1+5                                        'center tect on top line
            gosub Send_data
            high RS

for b2=0 to 14
Lookup b2,["R","e","p","a","i","r"," ","C","o","m","p","l","e","t","e"],b3
x=b3
gosub Send_Data
next
return
..........................................................................................
      Clr:
             low RS
             outl =%00000001          'Clear the display.
        pulsout E,1
             high RS
      return
..........................................................................................

      send_data:
            outl =x
            pulsout E,1
```

```
..............................................................................................................

GETSW_LOC:

if SW2 then SW2_ON_UPD
if NOT SW2 then SW2_OFF_UPD

        SW2_ON_UPD:
                SW2_LOC="B"
        return

        SW2_OFF_UPD:
                SW2_LOC="A"
        return
..............................................................................................................
```

This is done using relays, [illegible] transistors, [illegible]

old

Flowchart Description

Figure J90

Figure J90 is an operational diagram of the circuit board shown in Figure Design1_2.ckt]. In Item J90.10 the input selector switch is checked in order to determine which of the three possible operations (A, B, or C) is requested by the user. As denoted in J90.20 if operation A is selected the device branches to operation A. If operation B or operation C is selected, the device branches to either of the respective operations. If none of the operations are selected the device continues to wait for a selection.

Operation A

Upon startup, if the operation input switch is selecting operation A, the device switches the user hard drive BUS Address ID to a number other than 0. At the same time the master hard drive's power is turned on and the drive spins up recognized at ID 0 in place of the user hard drive. This function, as shown in flowchart item J90.40, can use any type of switching device, whether analog or solid state, to switch both the user drive ID and the master drive power. In [Design1_2.ckt] the devices used are electromechanical relays, which are switched with a Darlington transistor pair at the coil input. As shown in [Design1_2.ckt] relays RLY1, and RLY2 switch the 12 volt and 5 volt power connections to the master hard drive. This configuration uses 2 relays but the same task may be carried out using any number or configuration of relays, transistors, or other type of switching device. In another implementation, the hard drive power could have the ground connections all switched in order to turn the hard drive on and off. This implementation is shown in figure W52 [Design1.ckt]. When the master drive power and user drive address are switched, an optional message on an LCD screen (optional, but used in this implementation), appears along with an indicator lamp, which denotes the operation currently executing.

Operation B

Upon startup, when operation B is selected by the input switch, the device waits for X seconds before operation execution. This ensures that the user has time to abort and run under the normal operating conditions. Operation B as shown in flowchart item J90.30 waits for the specified time delay J90.60 and then Resets CMOS J90.110. At the same time an optional indicator lamp (LED B) is illuminated as shown in J90.100 and a message is displayed on the optional user interface (LCD) screen.

Operation C

Operation C is a normal operation mode J90.50 that allows the computing device to startup in a non-repair mode. Besides normal operation a message is displayed on the optional user interface J90.80 (LCD screen), and a normal mode indicator lamp is illuminated J90.90 (LED C)

After the selected operation executes the device loops, in order to check for a change in the operation selector switch. This is shown in J90.140, which performs the same function as J90.10. At this point, if the operation selector switch has not been

"Backup and/or Repair System" – "Multi-User System" – "Virus-Proof/Hacker-Proof System" – "Hardware-Repair System" – "Freeze-Buster System" – "Net-Lock System" – "Entertainment/Communication System" for Computing Devices and Hardware

Invented by Anthony More & Kenneth Largman Version 42601

1. The invention described herein is hereafter referred to as the: "Backup and/or Repair System" – "Multi-User System" – "Virus-Proof/Hacker-Proof System" – "Hardware-Repair System" – "Freeze-Buster System" – "Net-Lock System" – "Anti-Theft System" "Entertainment/Communication System."

2. BACKGROUND AND HISTORY OF INVENTION

2.1 For the past several years we have been developing a new type of computer repair process to enable typical, non-technical, computer users to repair complex computer problems without effort, repair knowledge or skills. Our goal was to provide a way for the computer user to simply flick a switch, push a button, or speak a command, and have the computer take care of fixing itself, quickly, and easily, no matter what was wrong with the computer. We also wanted to be able to protect the computer from damage.

We constructed a prototype switching assembly and installed it in a computer, with the control switch located on the front of the computer to give the user easy access to the switch, and enabled a person to:

• Conveniently and simply push a button, flick a switch, or speak a command and perform our automated repair process. This switching system and related features that we initially developed for the repair process also enabled us to create several derivative inventions.

This switch triggered relays that were used to switch between data storage devices by switching power and/or device identities -- functions that were used by the repair process. We wrote repair scripts and programs to automate the repairs, so that the user didn't need to know a thing about fixing computers. The repair scripts made backups of the user's data storage device, reformatted the data storage device as necessary, and then replaced some or all of the operating system data, and/or other settings and/or data. These repair scripts and programs were loaded onto the prototype, and after a few adjustments, we got the contraption working.

For the first time, in conjunction with a combination of our repair scripts and programs, a user could just turn a switch on their computer and the computer would fix itself. Incidentally, we realized that the same invention we had made for the repair process also provided the ability to easily switch between one or more data storage devices, and also to switch groups of data storage devices. By using the ability to switch between data storage devices, we were able to construct prototypes that had one or more data storage devices dedicated to particular users, and that by turning a switch the computer would be set up for a completely different user. Additionally, this gave us the ability to construct

computers that could be used by network administrators to rapidly switch between large numbers of data storage devices, and therefore, more easily create and update templates used in network repairs, perform software installations and "updates" of client computers.

The devices, methods, and technologies we developed for the repair process led to many new discoveries. We realized that many unique inventions could be derived from this technology. For example:

• A device that could automatically backup and/or repair data storage devices and software.

• A way to enable multiple users to share a computer, each having total privacy of data.

• A way to enable a computer to have totally separate and independent and multiple operating systems and unique setups on one computer.

• A way to enable switching between multiple data storage devices.

• A way to enable a computer to switch to an emergency "startup" and/or "operating" device.

• A method of switching data storage devices so as to "quarantine" viruses, block hackers, and protect data.

The repair process evolved. We wanted to be able to enable a user to test and repair more data storage devices and components, and be able to switch to other components in the event of component failure. We decided to develop a computer in which any part and any software could fail and/or become corrupt, and that our invention could fix anything, (hardware or software) that went wrong.

We realized there was a broader spectrum of devices that we could switch, which led to yet other unique inventions that were derived from this technology, such as:

• A way for users to switch from components that have failed to components that function properly.

We also recognized that certain types of devices are prone to causing computer "freezes" that can be resolved by breaking and re-establishing one or more of the connections to that device. Therefore we developed:

• A method of switching the connection to devices off and then back on, as a means to reset the connection and break out of a "freeze."

As we considered the repair process we also wanted to prevent the computer from needing repairs in the first place. One source of computer damage is from viruses and hacking from the Internet. We realized that our switching process could also be used to solve concerns about network privacy and security, and a desire to enable parents to control children's access to the Internet. We decided to use our invention to switch "on" and "off" network and/or communications connections. During this development process we developed:

• A method of switching and/or locking a network/communications connection in the "on" or "off" position.

So we added more switching features, such as giving a user the ability to turn a switch on their computer and switch between entire sets of data storage devices, the ability not only to switch between data storage devices, but also to switch power supply, jumper cable connections, network connections, and any type of circuit or connection, and enabled the ability to reset hardware and software settings. We added the ability to reset PRAM; BIOS; CMOS; CUDA, and any other chip, board, and/or device that stores such information. We then decided to add the ability to switch between a data storage device and a circuit board, and the ability to switch between circuit boards. Then we added the ability to switch remotely, and for the device not only to be on a computer, but on any type of computing hardware. We added the ability to switch between logic boards and entire computing hardware systems, neural networks, etc.

We kept adding more switching functions, until virtually anything on the computing hardware device could be switched locally or from a remote source, and interact with other devices that were local or at remote locations.

Initially we had just given the computer user the ability to perform the switching process by mounting the switch on the computer where it was easy for the user to reach the switch. But as time went on, we added the optional ability for it to be controlled: by a system administrator, other users, by network devices and appliances, automatically, locally, or remotely.

We created optional scripts and programs to enable computers and computing hardware to do new things with the new abilities that resulted from the new switching features. These scripts and programs enabled new methods of: repairing computers, switching

between data storage devices and groups of data storage devices, switching back up systems, reformatting data storage devices, providing for emergency switching of data storage devices and circuit boards and computing systems, recovering data from back-up storage devices, etc.

For example, a user could sit at a computer and flick a switch located on or in the computer to fix a corrupt data storage device (or any device), and be able to flick a switch on or in the computer to change from one device to a different device, such as a logic board and/or ROM chip, and/or network connection, etc.

Here is a different example using our switching system, in conjunction with programs and/scripts, to perform a backup and repair process for a malfunctioning hard drive:

- Two hard drives can be connected to a "regular" computer.
- A single toggle switch can be mounted on the front of the computer, or any location.
- Both hard drives are controlled by our special switching system that can control their "Device IDs" and/or "master" and "slave" settings, and power.
- Hard drive 1 is a "typical computer user's" hard drive with an OS, a few applications, documents, and e-mail. Its device identity is set as the "master" hard drive.
- Hard drive 2 can be partitioned into 3 partitions: a) a "start-up" partition b) a "master" partition and c) a "backup" partition. Partition "a" is configured to be the "booting" partition.
- During "normal" use, our switching system switches hard drive 2's device identity to be a "master" hard drive, but our switching system also turns off hard drive 2's power.
- In partition "a" we have a perfectly functioning OS and related software to control the repair process. In partition "b" we have exactly the same OS and exactly the same applications as on hard drive 1, in a "pristine state" with no "defects". Partition "c" is blank at this point in the process because the machine is new and "backups" have not yet been made.
- A program that copies data from hard drive 1 to hard drive 2 can then execute periodic "backups" of the user's data (e.g. the "My Documents" folder, email) to partition c of hard drive 2. These backups may be uncompressed, compressed, or represented by an algorithm. The program can be stored on any device that can store data (hard drive 1 or a flash ROM chip are two examples).
- This copying procedure can be made possible, for example, by utilizing a program that initiates the switching process (which switches the power "on" to hard drive 2 and gives it the "slave" device ID) at periodic intervals (that could be adjusted by the user) in conjunction with scripts that copy the user's documents and email to the

"backup" partition "c". Each backup that is created may be given a unique time/date stamp so that when the user needs his/her data back s/he can choose from multiple "backups."

Various parts of the OS, application software, or any other data on hard drive 1 could then be damaged, deleted, corrupted, or destroyed. The hard drive could even have "bad blocks" and/or sectors, and/or even physical damage on the surface of the hard drive. The corruption of hard drive 1 could be so terrible that the computer could not even "boot up." We could then repair it:

- "Flip" the "toggle switch" and the following switching process occurs:
- Our switching system then switches the "device ID" settings so that hard drive 1 becomes the "slave" drive, power is then connected to hard drive 2, and hard drive 2 is switched to become the new device ID of "master."
- The script that creates "backups" could then execute again and copy all or selective data from hard drive 1 (for this example, it could copy the user's "My Documents" folder and/or email.) to Partition "c" of hard drive 2.
- Another script could then run on hard drive 2 that would completely reformat hard drive 1. It could also map the "bad blocks" on the hard drive.
- Then another script could run on hard drive 2 that copies the "perfectly functioning" copy of the OS and applications from partition "b" over to hard drive 1.
- Optionally, a script could then run that asks the user which copy of the "backups" from partition "c" the user would like to revert to. Upon choosing a particular backup, the "My Documents" folder and email (from partition "c" on hard drive 2) would then be copied back to hard drive 1.
- When it finishes copying, another new script could run that shuts-down the computer and its hard drives.
- The user could then "flip" our switch again and it would switch the "device ID" back to "master" for hard drive 1, switch hard drive 2 to "slave" and cut its power.
- The user could then restart the computer, and it would boot-up perfectly into the freshly reformatted hard drive 1, with its freshly copied OS and applications, its freshly copied "My Documents" folder, and its malfunctioning behavior would thus be repaired.

We added optional switch locks to the hardware, and scripts and programs were developed to enable multiple users to use a computer with completely different sets of data storage devices, with each user unable to access the others storage devices. The functions of the scripts and programs can also be handled by programs in ROM, programmable logic controllers, circuit boards, and various forms of data storage devices.

Numerous scripts and programs were developed, and we continued to develop the hardware.

In some situations, we soon learned it could be dangerous or cause damage, to turn a switch when power is being supplied to a device, and thus we invented several methods of preventing (or locking) a switch from turning or deactivating the switch when power was being supplied, and releasing the switch (or allowing the connection to be made) when it was safe and power was removed. This dangerous situation can also be avoided by using a logic controller to prevent a switching process from taking place until it is "safe." This would be accomplished by having the controller keep track of power, device identities, etc. and thus control switching as needed.

It then occurred to us that we could trigger various functions very similar to what we had developed via hardware by using software that could be integrated into: data storage devices, ROM, programmable logic controllers, circuit boards, etc., which led to a whole new approach to the repair process. To clarify this, in addition to software triggering the switching process, we found a way to replace most or all the switching process with software, or to use the software switching replacement in conjunction with the hardware switching.

We then developed numerous options for triggering the process, instead of just being limited to a switch we realized it could be controlled via voice commands, via telecommunications, optical control, wireless communications, scheduled events, logic control, etc. We decided to provide optional security over the switching process not only by key switches, but by voice id, retina id, optical recognition id, thumb prints, voice prints, magnetic cards, passwords, encryption, and any type of method available to provide secure identification.

Therefore, we realized that we needed to make our invention work for a wide spectrum of users, no matter what options they wanted. We decided to make our invention scaleable -- expandable as needed -- with modular hardware components that could be quickly connected together if desired, and optional software scripts that could be mixed and matched as needed. Thus, if someone wanted one component switched, our switching system would consist of the switching circuitry needed for that one component and the optional software for that one function could be provided. If a user wanted more components switched, we would have the ability to just snap in additional modular components as needed, and provide the optional software for the additional functions. (Snapping the components together is optional... they can also be mounted as separate non-modular components.). Non-modular versions can also be produced as needed.

We wanted to make these innovations usable for robots, robotic devices, electronic devices, network appliances, vehicles, and all situations where computing equipment was integrated with other equipment and devices. Therefore, we revised the trigger and switching system so that instead of being limited by the restriction of having the switch and/or "trigger" located on the front of a computer (or under an access panel/door of some sort) the trigger and/or switch could be movable so that it could also be located anywhere to give the user(s)/operator(s) easy access. For example, in situations where a computer is used as part of a vehicle, robotic device, etc, the switching system(s) and/or trigger(s) can be located within easy reach of the user(s). It can be built into a dashboard, control panel, robotic control system, control room, house, building, door, remote location, or anywhere else.

We have ended up with a scaleable switching system with scaleable hardware and software and scripts and programs that perform many scaleable functions, that can fit together in modular fashion as needed; as well as, several methods of controlling the switching process.

We also invented electronic connections on the outside and inside of the computer that provide ways to connect lighting, decorations, LCD's, LED's, sound, and or video, to communicate what is taking place, and for entertainment purposes.

We also invented a light emitting/reflecting acrylic device that may also utilize/interact with the other inventions.

Upon evaluating what we had developed, we observed that it can be used to enable one or more functions described herein. Therefore our work evolved into writing this preliminary patent application.

We have attempted to put these inventions/processes/systems into 7 groups. They all utilize a variation of our "switching system" in conjunction with software and hardware. They are:

"Backup and/or Repair System"
"Multi-User System"
"Virus-Proof/Hacker-Proof System"
"Hardware-Repair System"
"Freeze-Buster System"
"Net-Lock System"
"Entertainment/Communication System."

3. How are these inventions different from existing products?

3.1 The "Backup and/or Repair System" - new and unique features:

- Push a button (or other trigger to initiate the switching process) and the computer repairs a corrupt or malfunctioning data and data storage device(s) by executing a process of automatic steps (without technical skills needed by the user.)
- A combination of hardware and software processes that back-up data and can repair data storage devices (for example, automatically re-format a data storage device, and then restores a backup).
- Use of "master copies" (or "templates") of software programs on separate data storage devices for purposes of repair.
- The ability to "start-up" from a separate data storage device as needed to be able to function and/or initiate repairs.
- The ability to back-up data to a separate, internal, protected (because it may be switched or "un-mounted" or locked) data storage device without user involvement in order to enable repairs (such as reformatting) to the malfunctioning data storage device.
- The ability to backup, copy and restore data (and execute scripts and/or programs) so as to repair data storage devices, even if the data storage device is corrupt and "unbootable" by booting from a different data storage device.
- The ability to repair devices that utilize computer equipment without needing to access the computer equipment. Several other new features have been developed and are summarized in the abstracts that follow.
- Ability to utilize and/or be integrated with our other systems.
- Ability to automatically repair any type or model or brand of computing device.

3.2 "Multi-User System" - new and unique features:

- Push a button (or other trigger to initiate the switching process) and the computer switches "device identity" settings for data storage devices so as to enable different

devices to become "startup" devices (for example, to accommodate manufacturer's default requirements for boot sequences).

- Ability to utilize and/or be integrated with our other systems.

- Ability to change device ID settings and/or power connections on data storage devices quickly and easily.

3.3 "Virus-Proof/Hacker-Proof" System - new and unique features:

- A means to automatically switch data storage devices by executing a process of steps (without technical skills needed by the user.) By switching device IDs and/or other means, so as to "quarantine" data, for a period of time, into separate data storage device(s). This allows time for updated virus programs to check for new viruses and "kill" them", and/or so that infected files can be accessed without contaminating the rest of the system.

- Ability to utilize and/or be integrated with our other systems.

- A means to prevent access to data within a computer by shutting off/on network connections as needed (automated) and by only having a data storage device "open" to the network that contain no "user" data or software.

- Automated web-site protection: data storage devices that "host" the data of a web site could be duplicated on many data storage devices and the "cycled" to be connected or disconnect to the network. In this way, "hacked" data could be repaired when it was cycled to the "offline" position, while an "un-hacked" duplicate data storage device could be instantly rotated "online" (switched) to take its place.

3.4 "Hardware Repair System" - new and unique features:

- Push a button (or other trigger to initiate the switching process) and the computer switches from malfunctioning or "failed" components by executing a process of steps (without technical skills needed by the user) to components that function properly.

- Ability to utilize and/or be integrated with our other systems.

- Push a button and the computer switches to a "backup" computer (internal components are all switched at once to duplicate components).

3.5 "Freeze-Buster System" - new and unique features:

- Push a button (or other trigger to initiate the switching process) and the computer momentarily interrupts the connection of a computer peripheral by executing a process of steps (without technical skills needed by the user) so that computer can "recognize" the device.

- Ability to utilize and/or be integrated with our other systems.

3.6 "Net-Lock System" - new and unique features:

- Push a button (or other trigger to initiate the switching process, for example, turn and lock with a key) and the system interrupts the connection of a network/communication connection (for example, the Internet and/or intranet) by executing a process of steps (without technical skills needed by the user) so as to restrict or allow access to said network/communication connection.

- Computers (and other computing devices and/or hardware) don't have built-in switches that can be easily controlled by the user(s) (or by an administrator, or across a network, or wireless, or other method of control) that allow switching on/off of network and/or communication connections. The "Net-Lock System" provides these abilities and comes with optional scripts and programs that enable users to more easily use these new abilities. It also enables high speed automatic switching of network communications connections.

- Ability to utilize and/or be integrated with our other systems.

4. ABSTRACT

4.1 Overall Abstract:

The following did not exist until now: the ability for a user to control the switching process by locking/unlocking a switch on their computer, remote switching as we have developed it, software switching as we have developed it, the many items that our

switching process can control, and our scripts and programs executing in particular orders with specific and unique, and useful results. We combined them into a switching process that provides many new functions.

The unique "Switching System" is an integral part of what enables these new, unique and useful functions to be made possible. The optional scripts and/or programs have been utilized in specific sequences to perform specific tasks in conjunction with the Switching System. The Switching System is more specifically defined in section 7.

The Switching System includes a switching process that can switch one or more of the following: between data storage devices, data storage device ID's (often controlled by jumper cables and/or a "cable select" cable on a data storage device), between power supplies, between jumper connections, etc. It can also reset PRAM; BIOS; CMOS; CUDA, and any other chip or board and/or device that stores such information. Any circuit between any two devices that can be "opened" or "closed" in any combination can be "switched". It can switch indicators (such as LED lights) for activity, power, and identity. It can also, reset hardware and software settings. As needed, it can utilize optional scripts and programs to enable use of these new switching abilities. It can do any of these switching processes in any combination and permutation.

(Please note that that the switching System can be scaled so that it can be used for one or more of the functions described in the following abstracts. It need not be constructed for more than one function, and can be scaled to perform any combination of functions as desired.)

4.1.1 Abstract of Software as a Switch "Replacement:"

Optionally, the "Switching System" can use a software "Switch Trigger" (see definition) replacement. In other words, a program and/or script can initiate the switching process, instead of a person pushing a button (see examples in section 7.1) The software can also replace a mechanical switch.

4.1.2 Abstract of Switch Lock, Bypass, Delay, and/or Cylinder Lock Device

4.1.3 Optional Switch locking mechanisms and switch deactivation mechanisms were developed to prevent damage to computer equipment if someone turned the physical "Switch Mechanism" at the wrong time. The locking mechanisms prevent the "Switch Mechanism" (a physical switch, for example, a "switch-lock") from physically turning when it is not safe to turn the switch. The switch deactivation mechanisms deactivate all

or part of the Switching Process until it is safe to perform the switching process, e.g., when no electrical current is flowing to the devices being switched.

4.1.4 A logic controller can also be used to control the Switching Process and/or power, and/or any other connections and/or settings, so as to prevent damage to computer equipment by deactivating the Switching Process when it is not safe to switch.

4.1.5 Abstract of system Scalability and Expandability:

The Switching System switch can be scaleable and expandable. It can switch one item, device, or circuit, or very large numbers (theoretically infinite numbers) of items, devices, circuits, and/or computing hardware systems. It can be modular, and/or non-modular.

4.1.6 Abstract of Location and Accessibility:

One of the features that makes the each of these systems different, is that there can be a "Switch Mechanism" (see definition) (a physical trigger) readily available to the user, and that the Switch Mechanism can be located anywhere, including on or near the computing device, and/or convenient to the user. For the first time, the devices being switched can be switched easily and conveniently. The Switch Mechanism can be located in easy to reach locations such as the front or side of computing devices, near user controls of robotic devices, on vehicle dashboards, in control rooms, locally, remotely, and/or wherever it is convenient for the user/operator. This enables the user/operator to easily reach a (the) switch(es). The Switch Mechanism can take the physical form of any sort of a trigger; for example, toggle switches, buttons, switches, switch-locks, voice control, retina identification, card readers, magnetic key systems, and any sort of local and/or remote system used for triggering a switching process.

Please note that when switching takes place, it is not necessarily switching to/from devices on the local computing hardware, but may switch to or from devices on a network, and/or global computer network and/or communications network. The "Switch Trigger" may be located separately from the "Switch Mechanism."

*****

4.2 The "Backup and/or Repair" System Abstract

The "Backup and/or Repair" System consists of copying data, executing scripts, and switching data storage devices for the purpose of repairing data and/or data storage devices.

The "Backup and/or Repair" system consists of a series of software and/or hardware events, that, when strung together in specific order(s), back-up and perform repair functions of data storage devices.

This invention can be built as a computer that contains the features described herein, and/or can be built as independent devices that can be added to or integrated into computers.

4.2.1 The "Backup and/or Repair" system as Used for data storage device repair:

One option is for the "Backup and/or Repair" system to keep and/or utilize one or more perfect master template(s) of the users' data storage devices, and it can back up and archive the user's data using software or scripts [(which can, for example, be located on a StorExecute (see definition)] that "backs-up" or copies data from one data storage device to another. When the data storage device has a "problem," the "Backup and/or Repair" system can use its switching features to access the perfect master template(s), and/or the backup(s) and/or archive(s), and may use some scripts and/or programs [(which can, for example, be located on a StorExecute (see definition)] to restore a computer to a functioning state. Rather than using a master template, the "Backup and/or Repair" system can also conduct the repair from a backup, and/or archive on a separate data storage device.

The following events can take place in variable sequences, and each step is optional, depending on desired results:

- The "Backup and/or Repair" system copies data from a user's data storage device to one or many different data storage devices.
- These other data storage devices would then contain "backups" (or duplicates) of some or all of the user's data.
- After the data is copied, a switching process can then protect the duplicates on the other data storage devices by restricting access to them (for example, by locking and unlocking a series of partitions, or by creating "read-only" files and/or folders and/or partitions.
- Then, if the user's "main" data storage device becomes corrupted, or it fails to "boot-up," a switching process can allow a different startup device to "boot-up."
- The user's data could then be copied BACK to the original user's "main" data storage device; and/or, a different data storage device can copy only the Operating System software, and/or application software to the original user's "main" data storage device.

An optional hardware diagnostic program may execute in conjunction with the switching system to administer repairs on demand and/or self repairs by switching from defective data storage devices to data storage devices that function properly.

Note: The user's own monitor could be used by the Repair System to communicate with the user. For example, a second video card (or other device to process a video signal) may be utilized by the system so that it can display information to the user on the users own monitor.

Alternatively, for example, the system may utilize the existing video card by switching its signal so that the repair system controller can control it and send its own video signal to the monitor (to display repair messages or information to the user using his/her monitor).

4.2.2 The "Backup and/or Repair" system as used for "Emergency Startup" & "Emergency Computing"

The "Backup and/or Repair" system can optionally be used for switching to a separate data storage device for use as an emergency startup system (note: the data storage device may be "on" and always available for instant switching, so that the computer does not require a restart). Thus, when a startup device is not recognized by the computing hardware, and/or at the request of the user, and/or other request from elsewhere, (or automatically when a problem is detected, and/or on a schedule) the "Backup and/or Repair" system can then switch to a secondary startup data storage device and restart, and/or switch between RAID mirror data storage devices, etc.

4.2.3 Abstract of the "Backup and/or Repair" system as Used for Formatting and Device Testing

The "Backup and/or Repair" system can optionally be used to test data storage devices. It can be used to temporarily switch to a data storage device for startup, while a data storage device reformats and/or tests another different data storage device.

4.3 "Multi-User" System Abstract

"Multi-User" System as used to enable multiple users to share a computer, each having total privacy of data:
The "Multi-User" System can be used to enable multiple users to use computing hardware as if each of the users had their own private computer. When a user is using a computer, the "Multi-User System" sets up the data storage device, operating system,

applications, etc. just for that particular user. Then, when a different user wants to use the computer, the "Multi-User System" hides away the previous users data storage device, operating system, software, and data, and provides a different data storage device, operating system, and software for the new user.

4.3.1 Abstract of the "Multi-User" system as used to enable a computer to have totally separate and independent and multiple operating systems and unique setups on one computer
The "Multi-User System" can be used to control totally different setups of operating systems and software, and switch back and forth between them. For example this would enable a computer to be set up with Linux and movie editing software in Japanese, and the "Multi-User System" could then switch the computing hardware to be set up with Windows and mathematics software in German.

4.4 "Virus-Proof/Hacker-Proof System" Abstract

"Virus-Proof/Hacker-Proof System" as used for a method of switching data storage devices so as to "quarantine" viruses, block hackers, and protect data.

By switching data storage device IDs and/or power, and/or network connection, and/or other means, data storage devices can be connected to a computer in such a way that one or more of the data storage devices can be isolated from other data storage devices, and/or isolated from network connections.

Thus, if a hacker or virus were to enter a data storage device that was connected to a network, said hacker or virus could only access one of the data storage device(s) because the other data storage devices were "separated" by the Switching System. This data storage device could be devoid of user data. Incoming data, such as email and/or web downloads could then be transferred to a data storage device that acts as a "quarantine are". After a period of time has passed, and/or virus checks have been run, data can then be safely transferred out of "quarantine" and onto user's "regular" data storage device. In this way, a data storage device could act as a "quarantine" for data. Viruses could then be "killed" in this isolated data storage device at a later time (for example, it would give a user enough time for an anti-virus definition to be written and downloaded for a new virus. This system would also prevent infected files from being accessed without contaminating the rest of the system.

Also, a user could switch from one data storage device that was "private" or "isolated" (by using our switching system) from the network, to a different data storage that was exposed to the network, but was "empty" of user's personal data. Thus, a hacker would

not be able to access the user's private data storage device., but only the one containing no user data.

4.5 "Hardware-Repair" System Abstract

"Hardware-Repair" System as Used for Computer Repair:
By utilizing the Switching System, a user can easily switch from components that have failed to components (and or computing device) that function(s) properly. An optional hardware diagnostic program may execute to determine the status of hardware, and if necessary, switch from defective devices to devices that function properly, (and/or to a secondary computing system) by utilizing the Switching System. Note: The switching of data connections may also occur while electrical power is still connected to the device(s) (see section 7).

4.5.1 Abstract of the "Hardware-Repair System" as Used for Formatting and Device Testing:

The "Hardware-Repair System" can optionally be used to test data storage devices, circuit boards and computers. It can be used to temporarily switch to a data storage device for startup, while a data storage device reformats and/or tests another different data storage device. It can be used to switch to a different logic board, network connection, or computing system. It can test the hardware that was taken out of use. One way it can do this is by switching from the device in-use, to alternate devices that are used while testing and formatting takes place.

4.6 "Freeze-Buster" System Abstract

"Freeze-Buster" System: a method utilizing the Switching System to momentarily switch the connection(s) to devices "off" (not connected) and then back "on" (connected), (or vice versa) as a means to reset the connection and "break out of" a device and/or computer "freeze."

4.7 "Net-Lock" System Abstract

"Net-Lock" System: a method of "locking" a network/communications connection to be either "on" or "off". This method utilizes the Switching System to be able to switch and/or lock a network and communications connection both "on" (connected) or "off" (not connected). The "Net-Lock System" may also contain optional scripts/programs that switch and lock the network and/or communications connection (including wireless).

This led us to another evolution. We realized that companies would want a way of shutting off internet connections, without shutting off their own intranet. So we developed methods for switching from an Intranet connection to a full web connection, and visa versa. This may also be done by utilizing two network connection devices that can be independently switched. This can also be achieved by integrating two network "jacks" (and associated and necessary circuitry/parts) onto one network interface card that can be independently switched.

Thus, if someone wanted one network connection switched, our switching system would consist of the switching circuitry needed for that one connection and the optional software for that one function could be provided. If someone wanted more connections switched, we would have the ability to just snap in additional modular components as needed, and provide the optional software for the additional functions. (snapping the components together is optional... they can also be mounted as separate non-modular components.). Non-modular versions can also be produced as needed.

The "Net-Lock System" can also switch on and off network connections. It can turn off and on (and lock and prevent access to) connections to a global computer/communications network, Intranet connections, and all other types of network connections.

For example, a parent could connect over a global communications network to their home computer and turn off and lock their computer network connection from use... and only they can unlock it.

Optionally, the user can restrictively control the "Net-Lock System" settings. For example, software could provide options such as: who has the right to "lock" or "unlock", when unlocking can occur, (on a schedule, and/or certain hours, etc,) etc.

An optional program/script gives the user/operator locking/unlocking the network and or communications connection. Optionally, this process could also run automatically.

5. Explanations of Terms

5.1 Master Template & Master Template Storage Device & Master Template System

5.1.1 Master Template: A master template is a collection of software that consists of one or more of the following: operating system, applications, or whatever else the user and/or maker of the template wants to put on it, and/or default/user preferences and settings. It is created by copying said software onto a data storage device (or partition) that is defined as a Master Template Storage Device.

5.1.2 Master Template Storage Device: A data storage device and/or partition(s) that is/are used for storing Master Templates. It may exist locally, and/or over a network. Optionally it may consist of more than one data storage device. This may be permanently or temporarily set to "read only" access during the repair process. Optionally, it may also be set to "read-write" access, for example, during an update.

5.1.3 Master Template System: A master template is created, copied, or exists and is stored on a Master Template Storage Device. It may be updated on demand, and/or at specific intervals defined and executed by a program. Data may be installed (and/or optionally copied), thus creating an updated master template.

5.1.4 StorExecute: Any method and/or device for storing and/or executing a program. This can be a logic board, CUDA, EPROM, chip, circuit board, etc.

5.2 Backup & Backup Storage Device & Backup System:

5.2.1 Backup: A copy of data to another data storage device and/or partition. It exists on a data storage device that is defined as a Backup Storage Device. This may be permanently or temporarily set to "read only" access immediately following the backup process. Optionally, it may also be set to "read-write" access, for example, during an update.

5.2.2 Backup Storage Device: A data storage device and/or partition(s) that is/are used for storing backups. It may exist locally, and/or over a network. Optionally it may consist of more than one data storage device.

5.2.3 Backup System: Optionally, "on demand," and/or at specific intervals defined and executed by a program, a backup is created (as needed). Backups may be overwritten on demand and/or based on a computer program that, for example, but not limited to this example, staggers the intervals for creating backups over time, thus creating a collection of backups. Optionally, backups may be created by currently existing programs. Optionally, backups may be incremental, differential, or full. The backup Storage Device may also have multiple partitions that are turned into "read only" partitions immediately after that user's data has been copied there, and could cycle back over the oldest partitions first, after all partitions were filled.

Optionally, the Switching System may switch off the accessibility of the Backup Storage Device (by interrupting power and/or changing device ID settings, or other means) so that

said data storage device is only accessible while backups are being created or restored, and thus hidden from the user the rest of the time.

Several different examples follow:

A program or script runs a "copy" command that makes a full, or partial, or compressed, and/or "normal", and/or encrypted, and/or "read-only" backup of User's data. This can be done by using any one of a number of software backup, or cloning products such as, but not limited to Retrospect; Assimilator; Backup Exec, Ghost, File Wave, etc., or by using a "copy" command, or running a block by block copy of the User's data.

Another Example: Backups could be stored that are: same day most recent, same day next older, same day next older, 1 day old, 2 days old, three days old, one week old, two weeks old, three weeks old, one month old, two months old. As time goes by, obsolete (oldest) backups may be overwritten. They can be made locally, or over a network.

Repair Examples

Example 1: A second operating system runs in the background with hardware and/or software process watchers that watch for a freeze, and/or any type of problem. When a problem occurs the repair process replaces any files and/or data that is different/modified/etc. as needed., resets connections as needed, and may copy and/or reset RAM, information in the processor, etc. as needed, and send a delayed copy of the data to the processor, prior to the last event that may have caused the problem (such as opening of an incompatible application).

2) Example 2: A second and "mirrored" operating system can run on a second processor, and a third another processor (or microprocessor) can run a repair program. The second data storage device can be running in a time delayed mode. When a problem occurs, the process in the second processor is stopped, (before a freeze), the freeze is analyzed, and the processor and ram is set up as they were before the event occurred that may have triggered the freeze.

Alternatively, it could backup in time without necessarily (or in conjunction with) analyzing what went wrong, and see if the freeze occurs again... if so, "back up" further in time... until such time as the freeze does not occur.

Comparative Copying and replacement of files and data.

Master template may be compared to the User data storage device and/or to a partition and/or area of the user data storage device that it needs to repair. Some or all of the data is repaired by copying from the master and replacing software on the user data storage device that is different, changed, modified, or missing. Any items that do not match the template are removed.

Shortcuts, finder flags, aliases, icon positions, folder views, etc. are set to match those needed on the user data storage device. Based on user preferences and/or defaults, particular items on the master template can be marked or selected as items not to delete and/or items not to copy.

The master template may also contain a log and/or database of information to store information, and during the repair process set such items as the volume name, machine name, user name, password(s), which master template to use, which Data Storage Device, and/or partition to use, etc. These may also be adjusted by the user as preferences.

There can be various (and different) master templates to choose from. When one or ones to be used can be selected by the user(s) in preferences. Example 1: a user named "Mary" may use one master template, whereas a user named "Fred" may use a different master template. Example 2: A robotic device should be controlled a particular way in a particular situation. Thus it is using "template A". The situation changes and it is decided that the robotic device should act a different way. A switch may be made to utilize master "template b". Any number and variety of master templates may be utilized. Example 3: In the anti-theft version, the master template can be shifted to be a "bogus" template if the ID check fails. Which user data storage device(s) to repair can also be a "default," and/or a preference, and/or can be modified by an administrator. More than one user data storage device can be repaired.

The master template(s) and data storage device(s) can also be repaired. In this case (a) different master(s) (perhaps on a network) can be used, and the repair process can be similar to the options described herein for the repair process of the user data storage device, except it is the master template(s) and data storage device(s) being repaired.

User preferences can enable a user to select whether only part of a data storage device is repaired, and/or if the entire data storage device is repaired (such as reformatted) but if only some data is replaced, for example, if just the data on "Partition A" is replaced, but not the data on "Partition B".

A sub-master (a subset of a master) can also be used as all or part of the repair process.

In preferences, data on the master can be selected for special attention such as: always replace, never replace, replace if changed, replace if missing, etc.

A database can be used to store preferences, and information about which template to use, which user data to repair, etc.
Example of one embodiment of the repair process: When repair is needed on the primary system and/or data storage device, switch to secondary operating system that may be mirroring and/or having delayed mirroring (and may use a secondary processor and/or protected processing), do repairs on primary system, reboot primary system if needed, switch back to primary system.

The repair process can function in a number of different ways. For example, it can be user controlled, it can always take place on a schedule, and/or on startup, shut down, etc.

The master template may be a "perfect" installation of the system and software and/or data that a user wants and/or is required and/or desired on their computer/computing device, that may also have been checked for conflicts and/or errors and said errors could then corrected by an IT professional.

There are a number of ways to create a master template. For example:
an original "perfect" installation (where errors may have been identified and corrected) can be made on the user data storage device and then copied, or installed, to a second data storage device that contains the master template.
It can be created on another computer elsewhere, and downloaded via a network to reside on the users' computers.
It can be created and/or reside on a data storage device located on a computer elsewhere, and run across a network to repair the users' computer.

It can be created on the storage device and/or partition used to store the master template.

When the master template is created elsewhere and "run", or installed, over a network, or created on a different data storage device than the user data storage device, then shortcuts and/or aliases may need to be modified to work properly when they are copied to the user data storage device. In this case, during the copy process, the code fixes those shortcuts and/or aliases to point them to the correct item on the user data storage device.

If a reboot of the computer is required, this step can be eliminated by copying the startup sequence of the computing device to an EPROM, and keeping it powered "on" when a computer is "shut down". RAM and/or other volatile memory, (and/or a time delay

version of RAM and/or other volatile memory) can also be stored, and copied back as needed.

Optionally, one or more additional switches and/or switch triggers can be utilized by user to confirm the repair process.

5.3 Archive Storage Device:

5.3.1 Same as a backup (5.2), but archives are never overwritten. Often (but not always) the type of media used for making an archive can only be written once.

5.4 Startup Device

A startup device is any device that can be used to "boot" or startup up a computer and/or computer equipment. It may exist on any media, device, and/or circuitry that can perform this function, and can be performed across a network.

(Intentionally no section 6)

7. Switching System:

7.1 Switch Mechanism: a physical switching device or a software switch (which uses software programs) to execute instructions and/or events. If a hardware switch is used it may be mounted on and/or in the computing hardware and/or on devices, control panels, dashboards, remote locations, control rooms, and anywhere.

For example, consider two data storage devices: Device A and Device B. The "Switch Mechanism" (in the form of a physical mechanism) could initiate the change of the device ID of Device A, and change the device ID of Device B. If the devices use jumpers for ID switching, the switching process could switch the jumper(s) on devices A and B to different IDs.

Software can do the same thing. For example, a program stored in a StorExecute (see definition) can be used to tell the computing hardware to "un-mount" Device A and "mount" Device B and treat the identity of Device B as a different ID.

7.2 Switch Trigger: Any method of triggering a Switch Mechanism to initiate the Switching Process. For example: Turning a switch or key, voice command recognition system, optical recognition system, software command, and/or any of a myriad other ways of triggering a switch to occur. The switch trigger can be controlled by the user or

operator locally and/or remotely, across a network, wireless, etc. The switch trigger may be mounted on and/or in the computing hardware and/or on devices, control panels, dashboards, remote locations, control rooms, and anywhere. It may also be initiated in software only.

7.3 Switching Process: The process of using a Switch Mechanism to switch data storage devices to and/or from other data storage devices.

The Switching Process may also use an optional program/script to give the user/operator the choice of which data storage device they want to use. For example, a dialog can be used to give the user the option to choose from an array of several data storage devices. Optionally, this process could also run automatically. This process may include the opening and/or closing of electrical circuits connected to data storage devices, and/or ground connections, and or jumper cable connections, to switch which device "boots" the computing device, and/or switch data storage device identity.

Switching Process: The ability to switch device(s) and/or circuitry to and/or from other device(s) and/or circuitry.

An optional program/script and/or switch(s) gives the user/operator the choice of which device(s) they want to switch. For example, a dialog can be used to give the user the option to switch from "parent data storage device" to "child data storage device"; or offer an array of several data storage devices to choose from; or the user or program can switch to a different logic board or RAM chip, circuitry or computing device. Optionally, this process could also run automatically.

7.3.1 Switching Process: The ability to switch device(s) and/or network and/or communications connections.

7.3.2 The switching of data connections may also occur while electrical power is still connected to the device(s).

7.4 Switching a Data Storage Device:

The switching system may perform one or more of the following functions:

7.4.1. The switching process can change the device ID for a data storage device. For example, in the case of a hardware switch mechanism, in some cases it is a matter of closing or opening the circuit(s) of the jumper(s) for one ID, and not closing/opening other jumper(s) for different IDs. Another example: switching a cable select cable so that the

"master" becomes "slave" and "slave" becomes "master" is another way of switching device IDs.

7.4.2. The switching process can change the device ID for a data storage device in other ways: this could also be achieved by having one data storage device (device "A") set to a particular ID (that is the startup device ID), but with its power switched off. Another data storage device ("B") could be in normal use. Then, when "A's" power is switched "on", this device, along with its ID, becomes "active", thus making it ("A") the new start up device. The ID used by device "B" can be switched to a different ID.

7.4.2.1. The Switching Process can switch data storage device power on and off, thus "hiding" and "un-hiding" the device; switching between making the device inaccessible and accessible.

7.4.3. In the case of software, a program may decide which device to mount and/or which device(s) to treat as active, and which device(s) to treat as inactive.

7.4.4. A software version may execute a program in a StorExecute , which can mount one data storage device and "un-mount" a different data storage device. Additionally, device Ids could be switched in software

7.4.5. Another example of how a software switch could operate is for a StorExecute , to be programmed to give the user and/or operator the choice which data storage devices and/or startup devices to use, and/or be programmed to make scheduled changes between devices in use. A StorExecute , can also change to become the default data storage device(s), unless the data storage device doesn't mount or freeze repeatedly, in which case it can automatically switch to another startup device and/or set of data storage devices.

7.4.5.1 Functionality of Circuit Board

This is but one example of how the Switching System can be controlled.

In circuit board figure W152T:

• A jumper shall control whether the time delay circuit receives power. Thus a jumper can disable the time delay circuit.

• If power is being supplied to power control indicators A, or B, or C, do not allow the board to switch anything, even if power to a power control indicator is changed. For example, if power is being supplied to power indicator A, and then is switched to power

indicator B while power is still being supplied to indicator A, ignore the change and keep the terminals closed that are associated with power control indicator B. Only if power is removed from all power control indicators for a period of 3 contiguous seconds or more, allow the changes in which circuits are closed when power is restored to one of the power control terminals.

• Boards and switches combined must be any of these sizes or smaller (smaller is better):

• The socket shall bypass the circuit board with the neutrals (see diagram of neutral jumper bypass).

• If Circuit A: Wait X contiguous seconds and check to see if power is still on to A. If so, turn on time delay circuit. Leave circuit on Y seconds and then turn off circuit. If power is still on to B, don't run again until such time as power is removed from all controls A and B and C for at least 3 contiguous seconds.

• If circuit C, turn on time delay after X seconds (follow b above) and then turn on 1,2,3,4.

• ID Jumpers 4 and 6 are optional spares.

• For multiple users/operating systems, and/or data storage devices, duplicate the circuitry in the drawing (except for the controller and switch/switch lock... in most cases only one controller and switch/switch lock is needed.

In reference to figure L75:

Please note that this is just one example of the "Backup and/or Repair System" and is a functional design. The integrated "Backup and/or Repair System" Switching System can be integrated anywhere in or on the storage device, and/or integrated into the storage device circuitry.

It can be built with wires and relays, and/or a software switching process, and/or a circuit-board, and/or a logic control device. An optional switch can be used that is separate or integrated into the data storage device.

7.4.6. An optional program/script can give the user/operator the choice of which backup and/or archive they want to use to the repair. Optionally, the backup and/or archive process could also run automatically and/or on a timed schedule.

(Intentionally no section 8)

9. How each System works:

9.1 The Switching System:

Four issues should be clarified when considering the Switching System. The way in which the "Switching Process" is initiated ("Switch Trigger"), the hardware (or software) switch ("Switch Mechanism"), that which is being switched (data storage device IDs, power, etc.), and the location and/or accessibility of the "Switch Mechanism".

A Switch Trigger is used to initiate a hardware or software switching process that enables a computing device to switch between one or more data storage devices and/or partitions on one or more data storage devices; and/or sets of data storage devices (Figure M24). When using a "hardware" switch (i.e., when the "Switch Mechanism" is a physical device, as opposed to software only), the switch can switch power and/or device ID jumpers and switch between data storage devices and/or groups of data storage devices, as needed. Similar results can also be achieved using software instead of, and/or in conjunction with, the hardware version of the "Switch Mechanism".

If a "hardware" switch is used, it may be mounted on and/or in the computer and/or computing hardware and can be controlled in any way switches are controlled, including but not limited to switches, switch locks; voice control; optical recognition, encryption, passwords, etc. The switching device can be controlled by the user or operator locally and/or remotely, across a network, wireless, and/or automatically, etc.

The Switching System takes place as described in section 7. Optional scripts/programs designed for the switching process function can be executed as well. See examples described in section 7.3.6.

9.1.1 Switch Lock, Bypass, Delay, and/or Cylinder Lock Device - How it Works:

The locking mechanisms and switch deactivation mechanisms were developed to prevent damage to computer equipment if someone turned the switch at the wrong time. The locking mechanisms prevent the switch (or switchlock) from turning when it is not safe to turn the switch. The switch deactivation mechanisms deactivate the switch until it is safe to use the switch. Some versions of the Switching System do not require a switch locking mechanism or switch deactivation mechanism.
There are several ways to construct the lock. It could be done with a brake, clutch, tooth, clutch, solenoid, piezo device, etc. Two examples follow:

9.1.2 An optional solenoid, brake, lock, or clutch assembly can be used to prevent a key from turning in the switch lock when power is on. (i.e. figures M20, M21, and M22). This device can stop either the lock cylinder from turning, and/or a rod and/or other attachment to the switch and/or switchlock.

Example: A mechanical rotary cam lock with an extension or mechanical key lock with an extension shaft is mounted so that the knob or key can be turned from the outside of a computer, or can be located behind an access panel that can be accessed easily by the computer user.

Coming from the rear of the cam lock or key lock is a round extension shaft, 1/4" in diameter, for example. The shaft is surround by a brake, such as a friction brake, magnetic brake, or many other types of brakes or clutches that can be used to stop a shaft from turning, the shaft then is connected to a electric switch. These three devices can be separately mounted on a platform, or to make things a bit more compact, they can be combined into one switching device with one housing.

When power is on, power is supplied to:

1) the brake so the switch can't be turned, and

2) power is provided to the input power post of the main electric switch.

Therefore wherever the switch is positioned before the computer is turned on and power is supplied, devices connected to that circuit will get power, and at the same time because the brake is on, the user will be unable to turn the switch to another position until the power is off.

Example: Instead of locking the shaft, the shaft can be eliminated, and the brake/clutch/solenoid/piezo device, etc. can lock the cylinder and thereby prevent it from turning.

Or, another method can prevent damage to the computing device: Option: An "StorExecute" (logic control device, Programmable Logic Controller and/or circuit board) can be used that can perform one or more of the following functions: reset the PRAM, CMOS, BIOS, etc., switches data storage device identities as specified, and switches data storage devices as needed, switches their power as needed, restarts or resets the computer, deactivates switching process as needed, runs computing device as needed, etc. (Note: Switch Trigger can be initiated in myriad ways: the Switch Mechanism does not

need to be physically moved to utilize integrated voice activated control, and control via telecommunications and network access – built into the circuit board/PLC. This board/PLC, etc., can also delay some switching events as needed, while other events transpire. For example if the user turns a switch the PLC/circuit board may delay that switching process, until it is safe for that event to take place without damage. Board may also deactivate Switch Trigger, and/or Switch Mechanism, and/or Switching Process as needed.

9.1.3 Switching System Scalability and Expandability- How It Works:

The Switching System switch is scaleable and expandable. It can switch one data storage device, or very large numbers (theoretically infinite numbers) of data storage devices. This is done simply by adding or removing switching circuits and control. We have developed modular switching devices than can be used for this purpose.

9.1.4 Location and Accessibility - How It Works:

One of the key features that make the Switching System different, is that there can be a "Switch Mechanism" (see definition) (a physical trigger) available to the user, and that the Switch Mechanism can be located anywhere, including on or near the computing device, and/or convenient to the user. For the first time, the devices being switched can be switched easily and conveniently. The Switch Mechanism can be located in easy to reach locations such as the front or side of computing devices, near user controls of robotic devices, on vehicle dashboards, in control rooms, locally, remotely, and/or wherever it is convenient for the user/operator. This enables the user/operator to easily reach a (the) switch(es). The Switch Mechanism can be easily accessed by any sort of a trigger, for example, toggle switches, buttons, switches, switch-locks, voice control, retina identification, encryption, card readers, magnetic key systems, and any sort of local and/or remote system used for triggering a switching process.

The Switching Process that can switch one or more of the following: between data storage devices, device ID's, power supply from one source to another, and/or on and off, and jumper connections. It can switch indicators (such as LED lights) for activity, power, and identity. It can also reset hardware and software settings. As needed, it can utilize optional scripts and programs to trigger the use of these new switching abilities. Another option, it can trigger a switching process over a network, and/or global computer network/global communications network (for examples see figures L70 - L76, M24).

The Switch Trigger can be used to initiate the switching process that switches between one or more data storage devices and/or partitions on one or more data storage devices;

and/or sets of data storage devices. When using a "hardware" switch trigger, the switch trigger can switch power and/or device ID jumpers to switch between data storage devices and/or groups of data storage devices as needed. The Software Switch can accomplish similar results (see explanation under Software Switch).

9.1.5 Note: Any switching features listed below can be combined with other switching features.

9.1.6 Note: Scripts and programs can be located on a StorExecute. (e.g.: figure W53 and L76)

Figure L76: The series of instructions of these various systems can be integrated into a StorExecute. These methods may utilize software, hardware, and/or a combination of hardware and software. For example, a program can be written into ROM that controls the startup sequence and/or data storage device selected for startup during normal use; and then when a request for repair has been made, the program in ROM can switch the startup device. Additionally, for example, a memory module can contain the master template(s), the backup(s), archive(s), and/or any other software, instructions, and/or code to execute the Switching System.

In the figure L76, L76.1 represents the concept that the switching system can be executed via a StorExecute. It may store and/or execute the some or all of the instructions that may control the entire repair process. For example it can reset PRAM, CMOS, BIOS, etc. settings as in L76.2, it can determine which data storage device will be the startup device, and switch startup devices during the repair process if needed, (it can also perform some types of repair without switching startup devices), it can control backups and archives to a storage device, memory module, a remote location, etc. It can also control communication with the users, manage automatic repairs and processes, including, but not limited to execution of all scripts, switching, programs, etc. It can interact with other logic control systems and devices to conduct, coordinate and manage collaborative repairs with other computing devices using the Switching System.

In the paragraph above, when we use the word "computing device" it is used in its broadest sense... for example, it could consist of biological and/or "nano" computing elements and switching mechanisms.

9.1.7 There are myriad combinations, permutations and variations on how hardware and software switching can be done. The following are only a few examples for demonstrating concepts. A person skilled in the arts can develop numerous variations in short order.

*****

9.2 Specific Examples:

9.2.1 The "Backup and/or Repair" System as Used for Computer Repair - How it Works:

The "Backup and/or Repair" system can be used to repair computers, and other devices that use data storage devices. One option is for the "Backup and/or Repair" system to keep and/or utilize one or more "perfect" master template(s) of all or some of the user's data stored on their data storage device(s), and it can backup and archive all and/or some of the user's data. When the data on a data storage device, or the data storage device itself has a problem, the "Backup and/or Repair" system uses its Switching Process and the Master Template(s), and/or the Backup(s), and may use a/various script(s) and/or program(s) which can for example be located on a StorExecute, to repair the data storage device(s). Rather than using a Master Template, and/or in addition to using a master template, the "Backup and/or Repair" system can also conduct the repair from a backup, archive, and/or other data storage device(s). (Example: see figures F31 - F44).

Optionally, the Master Template System and/or Backup System, and/or startup device may be utilized to perform their functions as described in sections 5.1 and 5.2. (Example: see figures F31 - F44)

If a decision is made (by user and/or operator and/or program) to repair a data storage device (Example see figures: W51 - W64), then the Switch Trigger triggers the Switching System. Several options and variations on what devices are switched can transpire at this point. This can occur in many variations. The Master Templates and Backups and Archives can exist on only one data storage device or on many different data storage devices in myriad combinations and repair one data storage device, or many.

Optionally, the Switching Process (See example figures S1 - S10, M24 and W51 - W64) can change the startup device to a different startup device that is connected to the computing system hardware either locally or via a network. Upon starting ("booting") from this new startup device, and/or upon switching to another logic control device, a program that may reside on this new startup device, and/or a logic control device, and/or StorExecute, may execute and display a list of various options, for example, methods to "fix" the data storage device that is in need of repair, and/or update Master Template.

An optional program and/or script may also execute (or give the user a dialog box offering the user to select) functions to be performed such as: user may choose to reformat the data storage device that needs repair ... and/or the user may choose to execute a low level

or quick reformat of the data storage device, or the user may choose to skip the reformatting process. When choice is selected, the function is performed by a program that executes that function, e.g., reformatting software is run.

Optionally, the user may also be asked if he/she wants to copy all or some of the data that exists on the Master Template data storage device(s), and/or Backup data storage device(s), and/or Archive data storage device(s), to the data storage device(s) that need(s) to be repaired. If this choice is selected, then the same type of program that was used to make the backup(s) could also be used to copy and/or modify the data from the Master Template back to the user's data storage device, thus making the data storage device used by the user (nearly) identical to the Master Template. (There may be some variations made to the data on the repaired data storage device as needed-- for example, shortcuts and/or aliases may need to be modified to point to their targets correctly).

Optionally, a program and/or script may also execute (or give the user a dialog box asking the user to select) any of the following functions to be performed: copy data from one data storage device (from a particular date or partition) to a different data storage device, as needed. For example, the same type of program that was used to copy User Documents, Email, Bookmarks/Favorites, Quicken data and/or preferences, etc. to the Backup Storage Device, can now reverse its process and copy all or some of the data back to the user's data storage device that needed repair. (A script may be executed that gives the user the choice of which backup (e.g. from which date) to copy the data).

Optionally, a program and/or script may also execute (or give the user a dialog box asking the user to select) any of the following functions to be performed: modify data, and/or perform ANY instructions ("de-fragment", virus scan, re-partition, etc.) that affect ANY data storage device that is in need of repair and is accessible/available to the computer system locally or across a network.

Upon successful completion of the repair process, a program and/or script may execute that causes the Switching Process to select the original "startup device," and the repaired data storage device can continue to operate normally.

The Master Template System and/or Backup System, and/or original data storage device may continue to be utilized to perform their functions.

The "Backup and/or Repair" system Switching System is utilized as described in section 7. Optional scripts/programs designed for various other functions can be combined as well.

9.2.2 In reference to figure TW 169:

This is another example of one method of an optional automatic repair script/program:

Upon computer startup, a script/program can hide all activity that occurs in the background. During this time, a logo and text or other information and/or graphics may be shown to user. This text and logo could be able to be modified by the user. Optionally, this "hiding" function can be toggled off/on at any time by keyboard input of a password and/or use of (a) "hot" key(s) by the user.

Optionally, a program or script could run the following sequence of events (all in the background hidden from the user):

A backup and/or archive program could be run that makes a complete backup and/or archive of the data on the data storage device that is normally used (e.g. at device ID 1). The destination of this backup and/or archive could be able to be modified in user preferences. For example the backup/archive could go in a partition or folder on the drive at ID 0, or could go on a drive at ID 2.

Optionally, a program or script executes that checks to see that the backup has been made successfully. After confirmation that backup is complete and successful, user can be given an optional dialog (that can be modified by client) allowing user to select one of the following options: (ID 1 is used as an example) no format of ID 1, quick format of ID1, low level format of ID1. Optionally including complete deletion and recreation and/or re-write of all partitions, master boot records, etc. (Background could remain hidden) Optionally, this dialog only shows up if selected in preferences. In lieu of this dialog, preference can be selected by the user as to which type of format is performed or not performed.

Optionally, if user is given the option in "user-preferences," based on user selection, quick, or low level, or no format is run on ID1. Otherwise whatever default option is in preferences is done. Optional script then executes a program that copies some (not all) data on ID 0 to wherever data belongs on ID 1. For example this script may copy such items as: Explorer Favorites, Netscape Bookmarks, E-mail, in box, out box, and address book. Optional: LED and/or computer screen can provide a dialog box that says something like: please turn switch to "Normal Use" position. Optional: LED and/or computer screen can provide a dialog box that says something like: "please restart computer". Or those events can happen automatically, with or without dialog. Optionally, all the events described above can also be written into a StorExecute.

9.2.3 Another example of controlling the repair process. See figure TW169

- An optional time delay circuit can be integrated that allows the PRAM/CMOS/CUDA, etc. to be reset prior to performing the rest of the repair process.

- Optionally, a controller can reset PRAM/CMOS/CUDA/BIOS, etc.

- Optionally, a logic control device can delay switching between data storage devices until restart, and/or can avoid restart by use of switching control to another logic control device, and/or can conduct repairs without restarting.

- Optionally, a second processor and OS can run in the background so that switching for repairs does not require restarting.

Please Note:

In all wiring and circuit board diagrams, only the material are illustrated, and it will be understood that they are not drawn to scale.

9.2.4 The "Backup and/or Repair" system as used for Repairing Several/Many Data Storage Devices, Multi User Repair:

The repair process can be used to repair multi-user computing devices, and/or device with multiple data storage devices using the same techniques as described herein for single data storage devices.

9.2.5 The "Backup and/or Repair" system as used for Emergency Startup - How it Works:

The "Backup and/or Repair" system can be used for switching to an emergency startup system and/or device. When a startup system and/or device can't be seen, and/or at the request of the user, and/or other request from elsewhere, the "Backup and/or Repair" system can switch to a secondary startup system and/or device, and/or to switch between RAID mirror data storage devices and/or systems. The "Backup and/or Repair" system Switching System is utilized as described in section 7. Optional scripts/programs designed for various other functions can be combined as well.

9.2.6 The "Backup and/or Repair" system as used for formatting and device testing - How it Works:

The "Backup and/or Repair" system can be used to test data storage devices. It can be used to temporarily switch to a data storage device for startup, while a data storage device reformats and/or tests another different data storage device. It does this by switching from the data storage devices in-use, to alternate logic control and/or data storage devices that are used while testing and formatting takes place.

9.3 The "Multi-User System" as Used for Multiple Operating Systems and/or Software - How it Works:

The "Multi-User System" can be used to have totally different setups of operating systems and software, and switch back and forth between them. So for example this would enable a computer to be set up with Linux and movie editing software in Japanese, and the "Multi-User System" could then switch the computing hardware to be set up with Windows and mathematics software in German.

9.3.1 The "Multi-User System" as Used for Multiple-Users - How it Works:

The "Multi-User System" can also be used to enable multiple users to use computing hardware as if each of the users had their own private computer. When a user is using a computer, the "Multi-User System" sets up the data storage device, operating system, applications, etc. just for that particular user. Then, when a different user wants to use the computer, the "Multi-User System" hides away the previous users data storage device, operating system, software, and data, and provides a different data storage device, operating system, and software for the new user.

9.3.2 The "Multi-User System" as used for Switching Between Several/Many Data Storage Devices - How it Works:

Data Storage Device Switching: "Multi-User System" can also be used for rapidly switching between many different data storage devices such as those used on computers. Please note that if the data storage devices are set up as bootable startup devices, then the "Multi-User System" can switch rapidly between startup data storage devices.

9.4 The "Virus-Proof/Hacker-Proof System" - How it Works:

A "Network accessible" data storage device defined:

A network accessible data storage device could usually be switched partially or completely off, and/or the network connection could be switched off, and/or the network accessible data storage device could be "un-mounted." The network accessible data

storage device could: 1) only be mounted and/or connected to the network, and/or turned on, when used for sending and/or receiving data on the network; or 2) could always be network accessible; or 3) sometimes be network accessible.

Optionally, the network accessible data storage device could be limited to containing only non-sensitive software, and/or outgoing data waiting to be uploaded or sent.

Optionally programs could exist on the network accessible data storage device that enables mail to be sent and/or received, but not opened.

The program could: unlock and/or open network connections, send and/or receive mail, upload and/or download data, close network connections, mount and or turn on, and/or connect to another data storage device, send downloads and/or mail received to another data storage device.

Quarantine data storage device

A Quarantine data storage device is utilized in the transfer of data back and forth between isolated segments of a computing device. Data may be copied from the "Internet Accessible" and/or "Temporary" data storage device to and from the Quarantine data storage device and then into the protected user data storage device as needed to isolate/protect data. Optionally, after being held in quarantine for a period of time, data can be checked with the latest virus checker before being copied to the protected user data storage device.

Additional information

If any computer on the network detects a virus and/or starts missing data, it notifies all nodes on the network and a preset protocol of response takes place that may consist of one or more of the following: all nodes on the network make backups; all nodes download most current virus checker; all nodes check themselves; backup schedule for all nodes may increase, etc.

Multiple communication cards with various identities may be used to switch identities and send/receive data. A computer send/receive function may be set up like a shell game, where the identity is changing rapidly, and the data storage device is on-line for as short a time as possible… just long enough to send and/or receive, and then it is taken off line. Rather than using a separate drive for viewing data, software would not allow viewing until drive was off line… then before going back on line, software would transfer all data except outgoing data to quarantine.

A program may also synchronize (or copy on a time-delayed schedule) emails (and or other files) that were sent and/or received from the "Temporary" data storage device to the "Quarantined" data storage device, as needed.

(Optionally, data on a data storage device (and associated computing hardware that determines date/time) may be "duplicated" onto a different data storage device with one significant difference: it could be set to use an "older" date/time setting so that if a "date-triggered" virus is present it would not trigger on the "older date" data storage device.)

9.5 The "Hardware-Repair System" as used for Emergency Computing - How it Works:

The "Hardware-Repair System" can be used for switching to emergency backup computing when a computer fails due to hardware problems. The "Hardware-Repair System" can switch to a secondary computing device, and/or to switch between computing components

9.5.1 The "Hardware-Repair System" as used for formatting and device testing - How it Works:

The "Hardware-Repair System" can be used to test computer hardware components, circuit boards and computers. It can be used to temporarily switch to a data storage device for startup, and then tests hardware components. It can be used to switch to a different logic board, network connection, or computing system, while it tests the components that were taken out of use. It does this by switching from the devices in-use, to alternate devices that are used while testing and formatting takes place.

9.5.2 Software Switch Replacement - How it Works:

A software switch replacement can use a program that performs many of the same functions as a switch.

For example, imagine two computers: Computer A and Computer B. A hardware switch could be used to turn off Computer A, turn on Computer B, and switch jumper(s) on a mirror data storage device on B to ID 0.

Software can do the same thing. For example, a simple program in ROM or elsewhere can be used to tell the computer (or computing device) to switch computing devices and use a mirror of the data storage device.

Software can select which computer circuit boards, devices, components, and hardware to utilize.

9.6 The "Freeze-Buster System" - How it Works:

The "Freeze-Buster System" includes a switching process that can switch and reset connections to devices. To do this it switches on/off one or more wires that run between the device and the computer/computing device. It can be used to switch any connections such as data, and/or power, and/or ground. It can switch one or more devices. It can also switch indicators (such as LED lights) for activity, power, and identity. As needed, it can utilize optional scripts and programs to enable use of these new switching abilities. Another option, it can switch local computing hardware, and/or switch over a network.

For example, imagine that an external "hot-swappable" data storage device is attached to a computer. "Freeze-Buster System" can be integrated into the device, or put inline, or on the computing device. It switches the connection to the device off/on as needed to break out of a freeze, and/or reset the connection.

Freeze-Buster can be used to reset connections with external and internal devices.

9.7 The "Net-Lock System" - How it Works:

The "Net-Lock System" includes a switching process that can switch one or more of the following: network and communication connections. It can switch indicators (such as LED lights) for activity, power, and device identity settings. As needed, it can utilize optional scripts and programs to enable use of these new switching abilities. Another option, it can switch local computing hardware, and/or switch over a network, and/or global computer network/global communications network. (for example see figures L70 - L74, M24.

A program and/or script may also execute (or give the user a dialog box asking the user to select) functions, for example, but not limited to:

- Lock/Unlock Network and/or communications connection.
- Setup remote lock and unlock preferences
- Schedule lock and unlock times
- Create or modify list of users who are authorized with lock/unlock privileges

9.7.1 Network Privacy and Security - How It Works:

The "Net-Lock System" can also switch on and off network connections. It can use the "Net-Lock" switching system to turn off and on (and lock and prevent access to) connections to a global computer/communications network, intranet connections, and all other types of network connections.

9.8 The Entertainment Center System as Used for Computer Repair - How it Works:

The Entertainment Center consists of electrical connections, holders, fittings, etc. on the inside, outside, and/or integrated into the body of a computing device that provide the ability for the user (or manufacturer) to hook up anything they want that may interact with the computer and provide entertainment, education, artistic value, etc. For example the outside of a computer can be covered in part, or completely with electrical connections that allow a user to attach devices. Examples:

Example 1: Flashing lights plug into a device that is attached or is itself the computing case. User can change where lights plug in. Lights interact with all switching events and/or with the user(s)

Example 2: A model and/or robot (or robotic device) modeled/constructed in the likeness of a person and/or animal and/or creature and/or thing and/or device, with computer built in Example: Robot that appears human, holding flat screen monitor, sits cross legged on users desk. Wireless keyboard option. Speech, movement, vision, etc. can be integrated into this robotic device. As part of the interface with the computer, the robot can explain what is happening, and discuss events taking place on the computer, work performed by the user, daily news, information gleaned from the internet, ask questions about how the user is feeling, etc.

Example 3: It can be used for art projects, education, entertainment, can consist of any creative use a user wants to make of it. For example, it can be an aquarium, or a hamster house, (in which case attachments can monitor and interact with the pet, and give user feedback. (i.e.: number of cycles a hamster has run on a wheel, etc.) It can be used for educational projects, anything at all. The idea boils down to this: A computer/computing device, does not need to look like a computer. It can have electrical connections and methods of attaching things that enable a user to do anything creative and constructive with the outside of the computing device. Events taking place in the computer can interact with components attached to the computer, and/or in communication with the computer. Components attached to the computer, and/or in communication with the computer can interact with the computer and information can be exchanged, processed,

controlled. The computer can control the attachments, and/or the attachments can interact with the computer.

Example 4: The entertainment center can have switches that turn things off/on and interact with the computer

Example 5: The entertainment center, that is connected to and/or houses the computer/computing device, can look like anything. Whatever someone wants to create. And any artistic endeavor.

Example 6: Entertainment center: Can use interactive modular devices, modular components that fit together, and/or non-modular components.

Example 7: The entertainment center can utilize and/or interact with any form of modular and non-modular devices that can plug into it. People can create whatever fantasy they like. Any sort of modular and non-modular kits can be built to be utilized with the entertainment center and for any purpose such as education, entertainment, games, science, robotics, chemistry, art, lighting, whatever.

Example 8: The entertainment center can run and/or be integrated with a biosphere, terrarium, garden, food dispenser and/or diet control device that may provide food on a schedule.

9.9 Method of Creating Custom Cables and Connections

Figure W177 description

A method of constructing new types of cables and/or connectors to enable switching.

"A" is a cable utilizing a new type of connector "B". The view of B is a top or bottom view. In this example 3 of the wires need to be switched, so the cable has been manufactured with 3 of the connections split. For example connection "N" is connected on one side to the cable, and the other side is plugged into a hard drive, but the connection between the two sides leads to separate pin outs on the cable, (in this example they are located at the top or bottom of the cable). These pin outs can then be connected to wires or a cable that is then attached to a switching device with switches the connection(s).

Example J below is similar to the connector above, but it is not built into a cable. Two cables could be plugged into each end of it, or a cable could be plugged in one end, and the other end could be plugged into a data storage device for example.

Example K is a top or bottom view of a connector in which each of the wires is switchable, and diagrams L and M shows side views of the same connector. The connections in these special cables and/or connectors can be male and/or female.

The switching process can be controlled manually, and/or by a logic control device.

F shows a switch with optional logic controller which can be plugged into standard cables and connectors, and that can switch one or more of the connections.

Please note that these new type of connectors don't need to have the new pin or connectors at the top or bottom, they can be located anywhere convenient. They can be any shape and/or side, and be designed for any type of cable.

Alternatively, the wires themselves can be routed directly to a switch (and back) as needed. Thus, cable A can have one or more of the wires routed directly to the switch as wires and/or as a cable.

This can be used to switch any type of cable, for example, it is possible to switch device ID, read/write, power, perform cable select switching, switch hardware devices, individual components, etc.

Figure W179 description

Figure W179: The one or more wires in a cable can be cut and go to a switch. This can be used to switch any type of cable, for example, it is possible to switch device ID, read/write, power, perform cable select switching, switch hardware devices, individual components, etc.

9.10The inventions described herein can be mixed and matched as needed

9.11Anti-theft system: The Anti theft system can contain one or more of the following: cellular phone technology, a global positioning system a transmitter/receiver, a meaning of identifying the user, and an extra data storage device, logic control, and a switching process. Using all or some of these devices it can use any means of identification to identify user. If user does not match authorized user the following

events can occur:
1) User data storage device is switched off and is thus "hidden"

2) A "bogus," but normal looking data storage device is switched "on," and mounts (optionally id may be switched). It may optionally have a hidden partition that is protected from being erased. Software executes that may be hidden and/or misnames, and/or otherwise would not draw attention from the user and sends out machine location to for example, police, owner's e-mail address, a security service. Information can also be transmitted using any type of transmitter, example: cellular phone call, and/or be sent over a network and/or the internet. The anti-theft process could also be triggered by a phone call.

If user identity doesn't match authorized user, the device may hide the user data storage device, switches to "rigged" data storage device, and also may turn on a global positioning system transmitter to identify location of computer.

When the location of the computer is identified, it can be tracked, even if it is moving.

9.12A combined repair system:

The hardware repair system can be combined with the other parts of the invention to provide a unique combination of repair functions. For example, if the hardware repair system included all of the features described herein, the combined inventions would provide a computer that could repair any software and hardware problem, be immune to hackers, be extremely virus proof, provide entertainment, interface, artistic, and educational features, etc.

In one example, the Self Repairing System utilizes two processors, and can use two discrete computing systems (with an optional shared data storage device, and/or mirrored data storage devices and/or quarantine data storage device(s) that may be integrated into one box) and can be combined with the hardware repair system.

Combined hardware & software repair example: If a second computing process is utilized, repairs can happen on the fly, perhaps without notice by the user, and/or with little interruption to the user. An integrated secondary backup computing system can always be "up and running", with the ability to automatically detect a problem, switch to the backup system, and conduct software repairs on the fly, and/or conduct repairs from the backup system, without bothering to switch the user to a secondary system (unless needed) because the repair process can be so fast the user may not even notice a problem. For example, a freeze occurs. The secondary system can detect the freeze, reset

connections, replace defective software components, and clear and reset devices as needed, so fast that the user may never notice that a freeze took place

The repair process can (optionally) utilize a comparative process that compares the software on the user data storage device to a perfect Master Template. By monitoring user processes, we can monitor the state of the user template, be aware of changes (optionally, have a database of changes and/or differences between the user data storage device and the master data storage device) and rapidly repair the user data storage device (on the fly) as needed based on that database, reset connections, and reset memory if needed.

As an option, system does not need to discard (and/or overwrite) user documents, email, etc. so if there is a freeze or corruption problem only the system software, and/or offending software that is having a problem can be repaired, and just those components that are different from the master can be replaced.

9.13 Optionally, the user operating system and/or applications, and/or data and the Master Template, and repair process can be run in volatile memory, enabling a fast repair process to perform much more quickly, especially if a comparative repair process is used that repairs problems as they occur. Thus, if a "process watcher" is used to detect a problem, the fast repair process can happen so quickly it may not even be noticed by the user.

9.14 Another version of the web site repair process is to use the repair process to repair the web site on a continuous basis during use, and/or optionally switch to other web servers during the repair sequence. Thus, a web site can always be kept in "perfect" condition. If the anti-virus/anti-hacking system is integrated, it could also prevent hacking past the web site. In this case, for example the web site could reside on the data storage device accessible to the network and/or internet, but all other data on the web server would be isolated, not connected to the network, and therefore "un-hackable."

Optionally, an integrated logic control device can reject additional users and close the site down for repairs when defects in the site are detected (during the process of comparison with the master template). To do this, during the repair process, when it is noticed that files and/or data is changed, modified, and/or different, the software then sends a command to the logic controller to reject further hits to the web site, (and optionally disconnect web site users), and conduct repairs as needed.

9.15 All of the inventions herein can be integrated into any device that utilizes a computer and/or computing device, such as televisions, radios, network appliances, machinery, vehicles, etc.

9.16 Net-lock and Freeze-buster can be internal and/or external devices. Either of these devices could lock into place using any sort of locking system and/or holder and/or retaining mechanism and/or device.

9.17 In Anti-virus/Anti-hacker can switch back and forth between a "side" of a computer connected to the internet, and a "side" that is isolated from the internet, by use of a hardware and/or software switching process.

9.18 Dual network connection cards (and/or multiple "cards") can be controlled by a single switch and/or switching process.

9.19 Net-lock can be triggered by software and can be a software switch, without use of hardware.

DIAGRAMS

S

The diagrams that begin with "S" represent the concepts of what we are switching, and that power, ground wire(s), device ID(s), startup order, data, etc. may be switched, and may bypass the switch as needed. They represent circuitry that could optionally bypass the switching mechanism; for example: power and/or ground and/or data (including via SCSI, Firewire, USB, IDE, and all other types of data communication). We assume someone skilled in the arts can use a bit of common sense here.

Please note that data storage devices, switch triggers, etc. in diagrams can be "local", or utilized over a network.

In the figures S1-S8, the circle with an X in it represents the switching process. The lines to the circle with the x show what is switched, and lines that go around the outside of the devices, (and not to the switch) represents the concept that the data does not need to get switched (but it can be switched).

Any combination of the 5 V and/or 12 V and/or ground and/or other power may be switched, either individually, or in combination. It is possible to switch the jumper cable connections that determine the boot order upon system startup. These connections are indicated on Figure S1 by the letters (a) (b) and (c).

Also, ground wires have not been shown, because anyone skilled in the arts can hook up ground wires (or interrupt them).

Data storage devices shown in these drawings can be hot swappable, "local", or located on a network.

When computing equipment is used with any other type of device(s) (for example: robots, robotics, transports systems, televisions, telecommunications, manufacturing, equipment control, etc.) the Switching System switching system and/or switch trigger can be relocated, and/or additional switches and/or switch triggers added, so as to easily provide accessibility users and/or people controlling the system. Additionally the switch mechanism and/or trigger can be camouflaged or hidden as needed. Location appearance, and type of switch can be changed as needed.

S1: Example of Backup and Repair System: the Switching System (S1500) is used for repair of one or many data storage device(s) (S1150) switched via connection (b), and connected to computing system hardware (S1100) via connection (f). Master(s) and backup(s) reside on one or many data storage device(s) (S1700) connected to the computing system hardware via (g) and

switched via connection (a). Electrical power, and/or ground wire(s) and/or jumper cable connections, and/or any connection that determines the boot order upon system startup, may all be independently or collectively switched by the switching process. These various connection types are indicated on Figure S1 by the letters (a), (b) and (c) and can be switched by the switching system (S1500). In the event that ID switching is used, the ID of the startup device can be switched to a different ID, and another data storage device can be switched to the default startup device position.

Optional PRAM, CMOS, CUDA, BIOS, EPROM (or other memory storage module and/or device) reset is indicated in box (9202) and controlled by the switching system (S1500 via the connection (d) and powered by connection (e).

S2: Example of Backup and Repair system Switching Process as used for repair of one data storage device. Master and backup on separate data storage devices, with archive.

S3: Example of Backup and Repair system Switching Process as used for repair of two or more data storage devices. Optional startup device.

S4: Example of Backup and Repair system Switching Process as used for repair with other processes such as switching circuit boards, chips, devices, device identity, data storage devices, circuitry, global positioning transceiver & transmitter anti-theft and positioning system, computing hardware systems, ROM, backup storage devices, identity indicators, remote trigger and/or switch, and any StorExecute (see definition).

S5: Example of Multi User System as used for switching between multiple operating systems, software setups, storage devices, and/or circuitry, and or templates.

S6: Example of Backup and Repair Switching System as it is used for repairing multi-user and/or multi-use use, (such as parents and children.)

S7: Example of Backup and Repair process as used with many data storage devices and/or startup devices and/or circuit boards.

S8: Example of Backup and Repair Switching System as used for emergency startup and/or operation.

S9: Example of Hardware-Repair Switching System as used for switching between computing devices. Thus, if one computing device fails, it is simple to switch to a secondary computing device. S9110 optional combined hardware represents the concept that such items at keyboard, mouse, monitor, etc. can be shared, or seperate.

S10: Example of BAR system Switching System as used for switching data storage device identity. A relay and/or switch can be used to break and connect jumpers as needed to change device identity.

S11 Switching process with dual computing devices and ability to switch data storage devices.

S12 Examples of Switching System triggering methods: switch trigger (a) triggers the Switching Process (b).

S13 Switching process for the purpose of isolating data so as to protect data from malicious code and/or "hackers" that are "snooping" via a network connection.

S14 Switching Process switching computing hardware devices in order to isolate and protect data and to include the repair ability of figure S1.

S18 Switching Process controlling dual/isolated computing systems for the purpose of isolating data (so as to protect data from malicious code/un-authorized network "prying eyes" ("hackers).

S19 Switching Process switching computing hardware devices in order to "repair" the computing device, e.g. the ability to switch from a "failed" device to a "backup" or "redundant" and "functioning" device

S20 Example of switching a network connection "off" or "on" and then back again.

S21 Example of the ability to interrupt a connection to a connected computing device for the purpose of "resetting" or "unfreezing" a connection and/or device.

S22 Example of isolating/protecting data by switching data storage devices and network connections.

S23: Example of various "systems" capable of being integrated with one another in a interconnected (optionally modular) manner. Note: each "system" can be "mixed and matched" selectively with other "system(s)" to function independently and/or dependently.

F

The diagrams that begin with "F" are flowcharts.

F20: This example shows the switching process between data storage devices. The switching process switches to a different startup device and/or group of data storage devices.

For example: User is using data storage device "A", then triggers the switching process, and device "A" is deactivated, and device "B" becomes the new startup device.

"A" and "B" can each represent one data storage device, or an entire group of data storage devices. Although the diagram only shows switching between A – G, there is actually no limit to the number of devices it can switch. Please note that: a user, schedule, or event may trigger the switching process.

F31-F44: Diagrams F31 through F44 are considered to be one continuous flowchart extending over seperate pages.

F31: Example of sequence of events including optional backup, archive, Master template creation/update

F32: Example of sequence of events including: switching startup devices; reset of PRAM/CMOS/CUDA, BIOS, EPROM (or other memory storage module and/or device) etc.

F33: Example of sequence of events including options offered to user.

F34: Example of sequence of events including more options offered to user.

F35: Example of sequence of events including method of virus checking.

F36: Example of sequence of events including backup and archive of data.

F37: Example of sequence of events including options for user to run various types of repairs.

F38: Example of sequence of events including options for user to select startup device.

F39: Example of sequence of events including options for user to select automatic repair preferences.

F40: Example of sequence of events including options for user to select type of data storage device format.

F41: Example of sequence of events including an example of repairs performed based on preferences.

F42: Example of sequence of events including backup/archive and options for user to select which backup or archive to "revert to".

F43: Example of sequence of events including update of master template.

F44: Example of sequence of events including options for user to revert to prior bookmarks, E-mail, and other items.

F50: Switching Process occurring without shutting the computing device down and restarting by utilizing two or more processors (and/or "protected processing") and two or more memory devices (and/or "protected/segmented" memory).

F51: By isolating data, potentially malicious code (e.g. viruses) cannot destroy other isolated data because it does not have access to the "protected" data.

F52: The Switching Process (5210) isolates data (5220) that exists on or in computing devices.

F53 Examples of the types of devices where data can exist (and thus isolated).

F54 Example of booting into different data storage devices for the purpose of isolating data on different data storage devices.

F55 Example of isolating data in volatile memory by "flushing" volatile memory, or "emptying" its memory, before and after switching to different data storage devices.

F56 Example of isolating data in volatile memory by utilizing two discreet volatile memory devices when switching between different data storage devices.

F57 Example of isolating data in volatile memory by switching between discreet "segments" of a single volatile memory device when switching between different data storage devices.

F58 Example of isolating data in processors by utilizing two discreet processor devices when switching between different data storage devices.

F59 Example of isolating data in a processor by switching between discreet "segments" (or "protected" addresses) of a single processor device when switching between different data storage devices.

F61 Example of the Switching Process (6110) occurring so as to physically switch "on" or "off" (by "breaking" or connecting the circuit/wiring) power connections (6120) and/or data connections (6130) of a network connection device (6140) as utilized by a computing hardware device (6150).

F62 Example of the Switching Process (6210) occurring so as to "logically" switch data connections of a network connection device (6240) by ignoring data (6220) or by ceasing to process the data (6230). A computing hardware device (6250) typically utilizes network connection devices.

F63 Example of a "brief" Switching Process (6310) occurring so as to physically switch, momentarily, from "on" to "off" and then quickly back to "on" (by "breaking" or connecting the circuit/wiring) power connections (6320) and/or data connections (6330) of a peripheral computing device (6340) as utilized by a computing hardware device (6350), for the purpose of "resetting" the device.

F64: Example of switching system connected to a computer that is connected to a network (e.g. a web server connected to the Internet) and many data storage devices (a, b, c, d, e, f -- could be many more). Switching system "cycles" between data storage device so that only one data storage device is utilized (online and connected to the network) by the web server at any given moment. Note: data storage devices may also be "repaired" (see figure S1) by repair system (while not connected to the web server) if they become corrupted or "hacked" (defaced).

F65: Example of a Switching System that "records" data from one memory device to a second memory device so that if memory in first memory device is deemed to cause undesirable events in the processor, the user can "revert" to the code/data that was executed before the undesired event occurred, thus allowing computer (and/or user) to avoid the activity that caused the problem the first time.

F66: Example of Switching System used as an Anti-Theft device to protect a user's private data. Optionally, it may verify ID as method to trigger Switching System. Optionally, system may send a signal to identify the computer's location.

F90: One example of the direction that data is allowed to "flow" from one device to another.

The diagrams (Examples: Figures 200.1-200.5, 201, 90) are meant to represent the concepts of what we are switching, and that power, device ID, network connection, data, etc. may be switched, and may bypass the switch as needed. They represent circuitry that bypasses the switching mechanism such as power when it is not switched, ground, data (including via SCSI, Firewire, USB, IDE, and all other types of data communication). We assume someone skilled in the arts can use a bit of common sense here.

F200.1 – F200.5: Flow chart of step-by-step scenario for process of protecting data from virus and hacker attacks.

F201: Devices the computing device switches.

W

Wiring Examples:

Circuit Boards: Figures starting with the letter "W" show relays and wires which we used for building prototypes. We have not duplicated the drawings into their circuit board versions because anyone skilled in the art can perform the same functions via circuit boards.

Please note that data storage devices, switch triggers, etc. in diagrams can be "local", or utilized over a network.

We have used relays and wires in the drawings, but assume that anyone skilled in the arts can convert relays and wires to circuit boards.

Data storage devices shown in these drawings can be hot swappable, "local", or located on a network.

When computing equipment is used with any other type of device(s) (for example: robots, robotics, transports systems, televisions, telecommunications, manufacturing, equipment control, etc.) the switching system and/or switch trigger can be relocated, and/or additional switches and/or switch triggers added, so as to easily provide accessibility users and/or people controlling the system. Additionally, the switch mechanism and/or trigger can be camouflaged or hidden as needed. Location appearance, and type of switch can be changed as needed.

In most of these diagrams the 5 V and 12 V power can optionally be switched, but in most cases both can be switched, but it is only necessary to switch one or the other.

Also, ground wires have not been shown, because anyone skilled in the arts can hook up ground wires.

W40: Example of Switching Process switching the data storage devices for the purpose of repair. This is accomplished by switching power and jumper Ids to change the startup order of said data storage devices.

W51: Multi-User computing system, with data storage device identity switching, PRAM, CMOS, CUDA, etc. reset, Switching System repair process, and use of brake, clutch, circuit board, programmable logic controller, etc.

At W5110 the circuit board/PLC can time delay the sequence of events so that the reset relay (for example see W5117) is triggered first, and then after

completion of reset, the rest of the switching process continues. Thus, if PRAM, CMOS, etc. is corrupt or set for a different startup device, it will be cleared prior to the next steps. Also, optionally after reset, a program or script can be run that sets the startup sequence and/or resets PRAM/CMOS, etc. to predetermined settings.

W52: Single User with repair.

W53: Repair and backup of Multi-User and/or multi-use system, and PLC and/or circuit board, and reset of PRAM, CMOS, CUDA, etc. Also, example of modular approach to backup and repair process. The same wiring and circuitry methods can be duplicated over and over for more users/more devices.

W55: Repair and backup of Multiple Data Storage Devices. Shows repair, backup, and individual switching of power and device identity. Please note that the device identity switch could be the type that is usually on the back of external SCSI devices that can be switched from 0 -6 or the type that can be switched from 0 - 15, or other switches that can perform switching to multiple identities. Also, example of modular approach to backup and repair process. The same wiring and circuitry methods can be duplicated over and over for more users/more devices.

W56: Repair and backup of Multiple Data Storage Devices. Shows repair, backup, and individual switching of power. Please note that device identity is not switched in this version. A version can also be constructed that has some of the devices switched, and some not switched. Also, it is an example of a modular approach to the backup and repair system. The same wiring and circuitry methods can be duplicated over and over for more users/more devices.

W57: Repair of Multiple Data Storage Devices. Repair on separate busses.

W58 Repair of Multiple Data Storage Devices utilizing hot-swap drives.

W59: Switch used for switching computers, computing devices, computing hardware. Thus, if one hardware device fails, just switch to second device. Please assume that switch W5911 can utilize the brake, PLC, circuit board controls shown in many of the other figures.

Optionally do not switch ground. Optionally, isolate ground from other computing device(s).

W60: Single user, with repair, with switch to secondary computing device and common mirror. Continued on W61.

It should be mentioned that on diagrams 60 and 61 and other diagrams that use shared computing hardware, that optionally ground wires can isolated, and/or

switched as needed to isolate each of the computing devices. Surge and voltage protection and filtering can also be added between the data storage devices and computing devices.

W6060 can be a switch or a relay. In diagrams W60 and W61, instead of using two relays for the master, one relay can be used if the wires from CPU A and B are isolated power coming from the power supplies. For example when CPU "A" is on it won't effect CPU B if B is isolated. The device can also be constructed without isolating the power, and without any switch or relay although that construction method is not recommended.

W61: Single user, with repair, with switch to secondary computing device and common data storage device mirror. Continued on W60.

W62: One computer and/or computing device containing two computers and/or computing devices with mirror and ability two switch between devices. The computing devices can be set up with multi-user, repair, etc., but with common mirrors and ability to switch between computing devices. This system can also be built as separate units instead of combined in one box.

W64 represents examples of wiring diagrams for interrupting connections to computing devices. The diagram shows four examples of this: A, B, C, and D. This is a functional diagram only. Additional wires can be added and switched as needed. Interrupting connections can also apply to switching wireless connections. The connection is briefly interrupted for the purpose of "resetting" the device.

W64NL represents examples of wiring diagrams for turning network connections "off" and "on". The diagram shows four examples of switching a network connection: A, B, C, and D. This is a functional diagram only. Additional wires can be added and switched as needed. Can also switch wireless connections.

W64.6 Example of interrupting connections to an external device to reset connection and/or for the purpose of resetting a device, connection, or to "break" out of a "freeze."

W65 Example of computing device containing dual computing devices that can be switched, plus a shared data storage device (that can be switched back and forth between the dual computing setup) for the purpose of isolating data (so that malicious code cannot affect other data).

W66: Repair of a Multi-User System.
Assumptions about circuit board:
If there is no power to circuit board when computer is shut down:

Circuit board won't operate and can't break CMOS circuit. In this situation it is best to just bypass circuit board and only break CMOS circuit when key is in momentary position.
If there is power to circuit board when computer is shut down AND if there is no power to logic board in shutdown mode:
Circuit board can be used to break power to CMOS prior to computer startup.
If there is power to circuit board when computer is shut down AND if there is power to logic board in shutdown mode:
Circuit board can NOT be used to break power to CMOS prior to computer startup.
Circuit board can be used to send "zap PRAM" keyboard sequence to logic board on startup.

W67 Similar to W65 but also shows how data can be further isolated: a network connection can be switched to ensure isolation of data. For example, the network connection can be switched "off" whenever data storage device (6215) is "on" and the network connection can be switched "on" when data storage device (6214) is "on" (and vice-versa). This "Virus-Proof/Hacker-Proof" computer is a computer that uses one (or more) data storage devices for normal use, and a different data storage device(s) for doing E-mail. The Switching System switches between the data storage devices, alternating between "active" and "inactive" data storage devices. To move data from the E-mail data storage device to the hard drive, or visa versa, a temporary "quarantine" data storage device is used. Optionally, it will not release data until an on-line connection has been made and the drive checked with a current virus checker. Data can optionally be held for a time period, and then released upon a virus check.... giving data virus companies time to detect new viruses and update their software.

Software can be used to replace the Switching System switch or in conjunction with the Switching System switch.

Optionally, the Switching System switch can leave a network connection "on", and switch "off/on" a separate connection to the internet/global computer and communications network. Or both the network connection and connection to the Internet can be switched separately

W68 Circuit Board and Socket Assembly Option

W152T: One type of circuit board for Repair and Backup

1) circuit 1
2) circuit 2
3) circuit 3
4) circuit 4
5) circuit 5
6) circuit 6

7) circuit 7
8) circuit 8
9) circuit 9
10) circuit 10
11) circuit 11
12) circuit 12
13) circuit 13
14) circuit 14
15) circuit 15
16) circuit 16

17) circuit 17
18) circuit 18
19) circuit 19
20) circuit 20
21) Power Control Indicator #21
22) Power Control Indicator #22
23) Power Control Indicator #23
24) Power Control Indicator #24
11) 25) Power Control Indicator #25
31) Power Control Indicator activity light for #21
32) Power Control Indicator activity light for #22
33) Power Control Indicator activity light for #23
34) Power Control Indicator activity light for #24
35) Power Control Indicator activity light for #25
26) time delay circuit
27) Data and power to LCD screen
and/or data for computer monitor
and/or to computer.
28) Power to board
50) time delay jumper
51) controller

In circuit board figures W152T:

A jumper shall control whether the time delay circuit receives power when the time control knob that activates power turns the power on. Thus a jumper can disable the time delay circuit.
Supply power to the switch common from the board power supply
Determine whether computer has power based on input from power cable.
If power is being supplied to power control indicators A, or B, or C, do not allow the board to switch anything, even if power to a power control indicator is changed, unless power is off to power input. For example, if power is being supplied to power indicator A, and then is switched to power indicator B while power is still being supplied to POWER INPUT, ignore the change and don't

switch power to B. Only if power is removed from power input for 3 seconds or more, then switch to A, or B, or C.
The socket shall bypass the circuit board with the neutrals (see diagram of neutral jumper bypass).
A = Normal Mode
B = Repair Mode
C = Zap mode

If switch is at A, don't change anything.
If switch is at B, turn on
if someone hit on button while zap is happening we are shot.

If Circuit A: Wait X continuous seconds and check to see if power is still on to A. If so, turn on time delay circuit. Leave circuit on Y seconds and then turn off circuit. If power is still on to B, don't run again until such time as power is removed from all controls A and B and C for at least 3 contiguous seconds.
If circuit C, turn on time delay after X seconds (follow b above) and then turn on 1,2,3,4.
ID Jumpers 4 and 6 are optional spares.
For multiple users/operating systems, and/or data storage devices, duplicate the circuitry in the drawing (except for the controller and switch/switch lock... in most cases only one controller and switch/switch lock is needed.

W153: One type of circuit board for Multi User System

TW160 One type of Circuit Board for Repair and Backup.

Optional Automatic Repair Example Script/program: On computer startup the script/program hides all activity that occurs in the background. During this time a logo and text is shown to user. This text and logo should be able to be modified in preferences. This "hiding" function can be toggled off/on at any time by keyboard input of a specific keys sequence: e.g. while the command key is down, sequential input of the letters: zappy

A program or script runs the following sequence of events (all in the background hidden from the user):

A backup program is executed that makes a complete backup of the data on the drive at ID 1. The destination of this backup should be able to be modified in user preferences. For example in could go in a partition or folder on the drive at ID 0, or could go on a drive at ID 2.

A program or script executes that checks to see that the backup has been made successfully. After confirmation that backup is complete and successful, user is given an optional dialog (that can be modified by client) allowing user to select one of the following options: no format of ID 1, quick format of ID1, low level

format of ID1. (Background remains hidden) This dialog only shows up if selected in preferences. In lieu of this dialog preference can be selected in preferences as to which type of format, or lack thereof, is performed.
If user is give the option in preferences, based on user selection, quick, or low level, or no format is run on ID1. Otherwise whatever option is in preferences is done. Optional script then executes a program that copies some (not all) data on ID 0 to wherever they belong on ID 1. For example this script may copy such items as: Explorer Favorites, Nets cape Bookmarks, E-mail, in box, out box, and address book. Optional: LED and/or computer screen can provide a dialog box that says something like: please turn switch to "Normal Use" position. Optional: LED and/or computer screen can provide a dialog box that says something like: "please restart computer". Or those events can happen automatically.
Optionally, all the events described above can also be written into ROM or the operating system.

TW 169 One type of Circuit Board for Repair of Multi-User System Option.

An optional time delay circuit can be integrated that has a circuit that is normally open. It can have two user controllable time delays controlled by knobs ranging from 5 seconds or less - 60 seconds or more. One time control knob shall control the amount of time until the circuit is closed. The second timer control knob shall control the length of time the circuit is open. A jumper shall control whether the time delay circuit receives power when the time control knob that activates power turns the power on. Thus a jumper can disable the time delay circuit.

If power is being supplied to power control indicators 1, or 2, or 3, or 4, do not allow the board to switch power, even if power to a power control indicator is changed. For example, if power is being supplied to power indicator 2, and then is switched to power indicator 4 while power is still being supplied to indicator 2, ignore the change and keep the terminals closed that are associated with power control indicator 2. Only if power is removed from all power control indicators for a period of 3 contiguous seconds or more, allow the changes in which circuits are closed when power is restored to one of the power control terminals.

Boards and switches combined must be any of these sizes or smaller (smaller is better). The socket shall bypass the circuit board with the neutrals (see diagram of neutral jumper bypass).

Power Control Indicator 1: When power is supplied to power control indicator #1: provide power to time delay circuit if jumper A is on. After time delay circuit has finished and power off for that circuit, provide power to input terminals 1, 2, 3, 4, 5, 6, 7, 8, 10. (not 9)
Power Control Indicator 2: When power is supplied to power control indicator #2: provide power to input terminals 3, 4, 6, 7, 8, 9, 10 (not 5)

Power Control Indicator 3: When power is supplied to power control indicator #3: provide power to time delay circuit if jumper A is on. After time delay circuit has finished and power off for that circuit, provide power to input terminals 11, 12, 13, 14, 15, 16, 17, 18, 20 (not 19)
Power Control Indicator 4: When power is supplied to power control indicator #4: provide power to time delay circuit if jumper A is on. After time delay circuit has finished and power off for that circuit, provide power to input terminals 13, 14, 16, 17, 18, 19, 20 (not 15)

Single User only uses power control indicators #1 and #2.
Please note: boards contain optional spare circuits that can be eliminated.
Please note: knobs for delay start and stop are temporary for the prototype and will be replaced with non-adjustable components after further experimentation with length of time for delay circuit.
Only the material portions of the circuit board and socket are illustrated, and it will be understood that is not drawn to scale.

W175: Example of Net-Lock system as external "add-on" device for network communications device (such as a network interface card, or modem, or other device) and a network. The data signal is redirected via the net-lock device to a switchlock (or other switch trigger) where the connection to the network can be locked "on" or "off" (wire circuit for data "opened" or "closed").

W176: Example of cable connections being "redirected" through Switching System to enable switching each and/or all connections to either a state of "connected" or "disconnected" so as to change, for example, Device IDs, power, read/write abilities, data flow, lock/unlock status, etc. An optional logic controller is indicated to control the process as needed. Without a logic controller, switching could be controlled by, for example, a physical "toggle" switch.

W177: Detailed example of cable connections being "redirected" through Switching Process to enable switching each and/or all connections to either a state of "connected" or "disconnected" so as to change, for example, Device IDs, power, read/write abilities, data flow, lock/unlock status, etc. An optional logic controller is indicated to control the process as needed. Without a logic controller, switching could be controlled by, for example, a physical "toggle" switch.

W178: Example of Entertainment/Communication System utilizing modular blocks that "snap" into one another and thereby connect the wires that are embedded inside each block ("connectors"). Thus, by connecting blocks, circuits can be formed to create effects or functions (such as, for example, but not limited to, an LED and/or LCD and/or robotic device, connected via blocks, to a power supply).

W179: Example of cable connections being "redirected" through Switching Process (in this example without using "wire connectors" as shown in W176) to

enable switching each and/or all connections to either a state of "connected" or "disconnected" so as to change, for example, Device IDs, power, read/write abilities, data flow, lock/unlock status, etc. An optional logic controller is indicated to control the process as needed. Without a logic controller, switching could be controlled by, for example, a physical "toggle" switch.

WJ1: Example of Switching Process switching jumper IDs so as to change the boot order of the attached data storage devices.

WJ2:

WJ3:

M

M20: Example of a Switching System that utilizes a brake on the lock cylinder to prevent cylinder from moving when power is present.

M21: Example of Switching System that utilizes solenoid or piezo switch to stop lock cylinder from turning when power is present.

M22: Example of Switching System that utilizes either a brake, clutch, lock, piezo device, or solenoid, to prevent a rod from turning. The rod goes from a mechanical key or rotary switch to an electrical switch.

M23 shows that the switching can be done on a circuit board represented by M2370, and switch by a switch and/or switchlock M2301. This Example of the Switching System that utilizes a programmable logic controller and/or circuit board to control one or more functions: for timing of switching, reset of PRAM, CUDA, CMOS, etc, control over switching, control over power, connection to network(s) for switch triggers and commands over network(s), control over switches and relays, control over circuit boards, control over global positioning system/security system, control over selection of startup device, control over switch triggering.

M24 shows that the switching can be done by any sort of switching device and/or switch trigger.

We have used a simple switch in the drawings, but assume that anyone skilled in the arts can also diagram the switch into a circuit board if so desired, so that the switching function can stand alone on a circuit board, or be integrated into other circuitry.
This is an example of the Switching System triggering methods.

L

The diagram figures that begin with the letter "L" are examples to demonstrate that the switch(es) can be located anywhere, and on a wide range of devices, inline, and in wireless situations.

When computing equipment is used with any other type of device(s) (for example: robots, robotics, transports systems, televisions, telecommunications, manufacturing, equipment control, etc.) the switching system and/or switch trigger can be relocated, and/or additional switches and/or switch triggers added, so as to easily provide accessibility to users and/or people controlling the system. Additionally, the switch mechanism and/or trigger can be camouflaged or hidden as needed. Location, appearance, and type of switch can be changed as needed.

L70: Example of switch(es) located on computing hardware.

L71: Example of switch(es) located on computing hardware.

L72MU: Example of switch(es) located on robotic device.

L72 NL: Example of switch(es) located on robotic device.

L72S: Example of switch(es) located on robotic device.

L73: Example of switch(es) located on vehicle.

L73FB: Example of switch(es) located on vehicle.

L73MU: Example of switch(es) located on vehicle.

L73NL: Example of switch(es) located on vehicle.

L74: Example of switch(es) located on robotic device.

L75: Switching system integrated into data storage device. Please note that this is a functional design. The integrated Switching system can be integrated anywhere in or on the storage device, and/or integrated into the storage device circuitry. It can be wired and/or wireless, and an optional switch can be used that is separate and/or integrated into the data storage device itself.

L76 Switching System integrated into a StorExecute (see definition).

L76.1: Switching System integrated into a StorExecute (see definition).

L76CD: Switching System integrated into automatic CD burner that can create multiple burned CDs without user interaction.

L81: Front view of Switching System mounted in case.

L81FB: Front view of Switching System mounted in case.

L81MU: Front view of Switching System mounted in case.

L81NL: Front view of Switching System mounted in case.

L83: Examples of LCD screen dialog.

L83MU: Examples of LCD screen dialog.

L84 Example of ability to disconnect a network connection with switch trigger mounted on vehicle dashboard.

E

E1: Front View: Optional clear case sitting on top of computing device for housing components described herein.

E2: Side view: Optional clear case sitting on top of computing device for housing components described herein.

E3: Two versions of front View of acrylic block lit by LED or other lighting source.

E4, E5, E6, E7: Optional top and/or sides and/or back of computer/computing device/peripheral device with optional lip. The dots represent electrical connectors for providing electrical current.

E8: Clear case surrounding computer/computing device/peripheral device.

E9: Clear case surrounding computer/computing device/peripheral device. Optional area for liquids and pipes, wires, etc.

E10: Optional top and/or sides and/or back of computer/computing device/peripheral device. The dots and lines represent electrical connectors for providing electrical current.

E11 and E12: Plugs into E-10 on one side, and is connected to E12 on the other side. Main circuits are shown on E11, and can be routed by software to pin outs on E12.

E80: Optional acrylic (or similar plastic) lit by LED lights to indicate the state of the switch. Optionally it can also be used as a decoration triggered by sound, motion, etc. Various colored lights are used to change colors in acrylic. Other art pieces can also be put in these "entertainment" boxes, such as lava lights, plasma lamps, and various art projects.

E81: Optional top and/or side panels of computing device case with positive and negative connections.

E82: Optional Colored or clear Transparent Acrylic Case Lit by LED or other light source. A layer of white acrylic or similar material can be under the outer layer for the purpose of diffusing the light. Optionally, case can be clear and change color when computer functions change when different groups of colored LEDs go on depending on switching functions taking place, or sounds, motion or other triggers. LEDs can be hidden in bottom of case, which can be surrounded by colored material.

Backup & Repair	Freeze-Buster	Hardware Repair	Virus-Proof Hacker-Proof	Net-Lock	Multi-User	Entertainment/ Communication
E14	F63	L70	F200.1	F61	F20	E1
E83	L70	L71	F200.2	F62	F50	E10
F31	L71	L72	F200.3	L70	F64	E11
F32	L72S	L73	F200.4	L71	F66	E12
F33	L73FB	L74	F200.5	L72NL	L70	E14
F34	L74	M20	F201	L73NL	L71	E2
F35	L81FB	M21	F50	L74	L72MU	E3
F36	L84	M22	F51	L81NL	L73MU	E4
F37	M23	M23	F52	L84	L74	E5
F38	M24	M24	F54	M23	L75	E6
F39	S12	S12	F55	M24	L76CD	E7
F40	S21	S19	F56	S12	L81MU	E8
F41	S23	S23	F57	S20	L83MU	E80
F42	W64	S9	F58	S23	M20	E81
F43	W64.6	W153	F59	W175	M21	E82
F44		W59	F64	W64.5	M22	E83
F50		W60	F90	W64NL	M23	E9
F64		W61	L76CD		M24	S23
F65		W62	M20		S10	W178
L76		W179	M21		S12	
L76.1			M22		S18	
L76CD			M23		S23	
L81			M24		S3	
L83			S10		S4	
M20			S11		S5	
M21			S12		S6	
M22			S13		S7	
M23			S14		W153	
M24			S18		W169	
S1			S22		W51	
S10			S23		W53	
S12			W65		W55	
S18			W67		W56	
S2			W68		W57	
S23			W176		W58	
S8			W177		W66	
W152T			W179		W68	
W160 W176					W176	
W170 W177					W177	
W40 W179					W179	
W52						
W58						
WJ1						
WJ10						
WJ2						
WJ3						

Table of Which Diagrams Go With Which Invention Embodiments